Threat Assessment Research Publications

This list presents peer-reviewed, published articles with empirical data produced by the Virginia Youth Violence Project, Dr. Cornell's research team in the University of Virginia's School of Education and Human Development. The initial studies referred to the Virginia Student Threat Assessment Guidelines, which in 2018 was renamed the Comprehensive School Threat Assessment Guidelines. This list does not include book chapters or descriptive articles that do not present original findings.

Page	Citations
	Field Tests
3	Cornell, D., Sheras, P. Kaplan, S., McConville, D., Douglass, J., Elkon, A., Knight, L., Branson, C., & Cole, J. (2004). Guidelines for student threat assessment: Field-test findings. *School Psychology Review, 33*, 527-546.
23	Kaplan, S., & Cornell, D. (2005). Threats of violence by students in special education. *Behavioral Disorders*, *31*, 107-119.
36	Strong, K., & Cornell, D. (2008). Student threat assessment in Memphis City Schools: A descriptive report. *Behavioral Disorders, 34,* 42-54.
	Controlled Studies
49	Cornell, D., Sheras, P., Gregory, A., & Fan, X. (2009). A retrospective study of school safety conditions in high schools using the Virginia Threat Assessment Guidelines versus alternative approaches. *School Psychology Quarterly, 24*, 119-129.
49	Cornell, D., Gregory, A., & Fan, X. (2011). Reductions in long-term suspensions following adoption of the Virginia Student Threat Assessment Guidelines. *Bulletin of the National Association of Secondary School Principals, 95,* 175-194.
70	Cornell, D., Allen, K., & Fan, X. (2012). A randomized controlled study of the Virginia Student Threat Assessment Guidelines in grades K-12. *School Psych Review*, 41, 100-115.
97	Nekvasil, E., Cornell, D. (2015). Student threat assessment associated with positive school climate in middle schools. *Journal of Threat Assessment and Management 2*, 98-113. doi: http://dx.doi.org/10.1037/tam0000038
113	Maeng, J., Cornell, D., & Huang, F. (2019). Student threat assessment as an alternative to exclusionary discipline. *Journal of School Violence,* doi: 10.1080/15388220.2019.1707682
	Disciplinary Outcomes and Race/Ethnicity
125	JustChildren and Cornell, D. (2013). Prevention v. punishment: Threat assessment, school suspensions, and racial disparities. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/UVA_and_JustChildren_Report_-_Prevention_v._Punishment.pdf
150	Cornell, D., Maeng, J., Huang, F., Shukla, K., & Konold, T. (2018). Racial/ethnic parity in disciplinary consequences using student threat assessment. *School Psychology Review, 47*, 183-195. doi: 10.17105/SPR-2017-0030.V47-2
163	Cornell, D. & Lovegrove, P. (2015). Student threat assessment as a method for reducing student suspensions. In D. Losen (Ed.), *Closing the School Discipline Gap: Research for Policymakers* (pp. 180-191). New York, NY: Teachers College Press.

184	Maeng, J., Cornell, D., & Edwards, K. (2023). Threat assessment and disparities in school discipline. *Journal of Threat Assessment and Management*. https://dx.doi.org/10.1037/tam0000213
	Studies of Training Effects
195	Allen, K., Cornell, D., Lorek, E., & Sheras, P. (2008). Response of school personnel to student threat assessment training. *School Effectiveness and School Improvement, 19*, 319-332.
209	Stohlman, S., & Cornell, D. (2019). An online educational program to increase student understanding of threat assessment. *Journal of School Health, 89* (11), 899-906. https://doi.org/10.1111/josh.12827
217	Stohlman, S., Konold, T., & Cornell, D. (2020). Evaluation of threat assessment training for school personnel. *Journal of Threat Assessment and Management*. http://dx.doi.org/10.1037/tam0000142
	Studies of Implementation
229	Burnette, A. G., Datta, P. & Cornell, D. G. (2018). The distinction between transient and substantive student threats. *Journal of Threat Assessment and Management*, 5, 4-20. http://psycnet.apa.org/record/2017-56103-001
246	Burnette, A.G., Huang, F., Maeng, J.L., & Cornell, D. (2018). School threat assessment versus suicide assessment: Statewide prevalence and case characteristics. *Psychology in the Schools*, 1-15. doi: 10.1002/pits.22194
261	Cornell, D., & Maeng, J. (2018). Statewide implementation of threat assessment in Virginia K-12 schools. *Contemporary School Psychology, 22*, 116-124. doi: 10.1007/s40688-017-0146-x
268	Cornell, D., Maeng, J., Burnette, A.G., Jia, Y., Huang, F., Konold, T., Datta, P., Malone, M., Meyer, P. (2017). Student threat assessment as a standard school safety practice: Results from a statewide implementation study. *School Psychology Quarterly*. http://dx.doi.org/10.1037/spq0000220
280	Burnette, A. G., Konold, T., & Cornell, D. (2019). Grade-level distinctions in student threats of violence. *Journal of School Violence*. https://doi.org/10.1080/15388220.2019.1694031
293	Maeng, J., Malone, M., & Cornell, D. (2020). Student threats of violence against teachers: Prevalence and outcomes using a threat assessment approach. *Teacher and Teacher Education*, *87*, 1-11. doi.org/10.1016/j.tate.2019.102934

School Psychology Review,
2004, Volume 33, No. 4, pp. 527-546

Guidelines for Student Threat Assessment: Field-Test Findings

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Abstract. A demonstration project was conducted to field-test guidelines for schools to use in responding to student threats of violence. Results from 188 student threats occurring in 35 schools over the course of one school year are described. School-based teams used a decision-tree model to evaluate the seriousness of a threat and take appropriate action to reduce the threat of violence. Using threat assessment guidelines, the majority of cases (70%) were resolved quickly as transient threats. More serious cases, termed substantive threats (30%), required a more extensive evaluation and intervention plan. Follow-up interviews with school principals revealed that almost all students were able to continue in school or return to school after a brief suspension. Only 3 students were expelled, and none of the threatened acts of violence were carried out. These findings indicate that student threat assessment is a feasible, practical approach for schools that merits more extensive study.

In the late 1990s, a series of school shootings stimulated authorities nationwide to review school safety policies and to seek new practices for preventing student violence (Mulvey & Cauffman, 2001; Walker & Epstein, 2001). The National Center for the Analysis of Violent Crime (NCAVC) of the Federal Bureau of Investigation (FBI) convened a national conference on school shootings in 1999, and recommended in its report (O'Toole, 2000) that schools adopt a threat assessment approach to prevent similar acts of violence. Likewise, the U.S. Secret Service, in collaboration with the U.S. Department of Education, advocated the use of threat assessment, and in 2002 began offering threat

Author Notes. We thank Albemarle County and Charlottesville City Schools for their participation in this project. We are grateful for the contributions of Jim Bond, Nancy Cornell, Carole Hastings, Ron Hutchinson, Allen Kirby, Chris Love, Frank Morgan, and Bobby Thompson, who served on our School Work Group; Donna Bowman, Arlene Cundiff, Chip Harding, Kirk Heilbrun, and John Monahan, who served on our Advisory Group; and Mary Ellen O'Toole and Terri Royster of the Federal Bureau of Investigation, who provided consultation. We also thank Russell Skiba and Michael Furlong for comments on an earlier draft of this article. This project was supported by a grant from the Jessie Ball duPont Fund.

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assessment training to schools nationwide (Fein et al., 2002). The present study reports on the field-testing of a set of guidelines for schools to use in responding to student threats of violence. The guidelines were developed to implement recommendations of the FBI report (O'Toole, 2000). This appears to be the first demonstration of this threat assessment approach in schools.

The initial reaction to the school shootings by many authorities was to develop a profile or set of characteristics that could be used to identify potentially dangerous students before they engaged in a violent act. The U.S. Department of Education and Department of Justice disseminated to every public school in the nation a series of "warning signs" for identifying potentially violent youth (Dwyer, Osher, & Warger, 1998). The American Psychological Association (APA) released a "warning signs" pamphlet (APA, n.d.) and the National School Safety Center (NSSC, 1998) published its *Checklist of Characteristics of Youth Who Have Caused School-Associated Violent Deaths*. Other state and national organizations have released their own checklists and warning signs (Sewell & Mendelsohn, 2000).

Profiling of potentially violent students is problematic. Sewell and Mendelsohn (2000) pointed out that the pressure to publish such profiles or warning signs has resulted in lists that exceed the boundaries of existing knowledge. There is no body of research demonstrating the validity of these profiles or lists of warning signs, and there is concern that profiling will result in the false identification of students as violent who are not in fact dangerous (O'Toole, 2000). Because serious acts of violence are relatively infrequent, and committed by a small proportion of students, it is difficult to identify items or signs that are sufficiently specific to them. Many risk factors correlated with violence are not specific indicators of violence, and can be found in a much larger population of students. The broader or more general the items in a checklist, the greater the rate of false-positive identification one can expect (Sewell & Mendelsohn, 2000).

Inspection of the existing profiles and warning signs checklists reveals that there are many broad, general items that could result in false-positive identifications. For instance, the 16 warning signs in the federal government's guide (Dwyer et al., 1998) include such general criteria as "history of discipline problems," "drug use and alcohol use," "feelings of being picked on and persecuted," and "excessive feelings of rejection." The authors of this list cautioned about their potential misuse (Dwyer et al., 1998), but such cautions are easily overlooked by school officials anxious to prevent violence. The APA's warning signs pamphlet (APA, n.d.) was prefaced by the alarming statement, "If you see these immediate warning signs, violence is a serious possibility." Among the warning signs listed were "increase in risk-taking behavior," "increase in use of drugs or alcohol," "significant vandalism or property damage," and "loss of temper on a daily basis." The National School Safety Center's 20-item *Checklist of Characteristics of Youth Who Have Caused School-Associated Violent Deaths* (NSSC, 1998) included "has previously been truant, suspended, or expelled from school," "has little or no supervision from parents or a caring adult," and "tends to blame others for difficulties she or he causes." Although all of these items may be correlates of youth aggression, they are not specific indicators of violence and cast too broad a net in identifying potentially violent youth. For such items to be useful, a more focused approach that identifies a narrower group for evaluation and potential intervention is essential.

Reports by the FBI (O'Toole, 2000) and the U.S. Secret Service and Department of Education (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) concluded that valid profiles of homicidally violent students are impossible to construct, and that profiling is not a viable strategy for preventing school violence. The FBI report stated:

> One response to the pressure for action may be an effort to identify the next shooter by developing a "profile" of the typical school shooter. This may sound like a reasonable preventive measure, but in practice, trying to draw up a catalogue or "checklist" of warning signs to detect a potential school shooter can be shortsighted, even dangerous. Such lists, publicized by the media, can end up unfairly labeling many nonviolent stu-

> dents as potentially dangerous or even lethal. In fact, a great many adolescents who will never commit violent acts will show some of the behaviors or personality traits included on the list. (O'Toole, 2000, pp. 2-3)

Likewise, the U.S. Secret Service (Vossekuil, Reddy, Fein, Borum, & Modzeleski, 2000) concluded:

> The use of profiles is not effective either for identifying students who may pose a risk for targeted violence at school or—once a student has been identified—for assessing risk that a particular student may pose for school-based targeted violence. The personality and social characteristics of the shooters varied substantially. Knowing that an individual shares characteristics, features, or traits with prior school shooters does not advance the appraisal of risk. Moreover, the use of profiles carries a risk of over-identification—the great majority of students who fit any given profile will not actually pose a risk of targeted violence. Finally, use of profiles will fail to identify some students who in fact pose a risk of violence—but who share few if any characteristics with prior attackers. (p. 5)

In July 1999, shortly after the shooting at Columbine High School in Littleton, Colorado, the FBI's NCAVC convened a symposium on school shootings composed of experts in law enforcement, education, mental health, and related fields, as well as professionals who had been involved in a school shooting incident. The Critical Incident Response Group of the NCAVC released a report in September 2000 that advised schools to adopt a threat assessment approach to deal with potential violence, as distinguished from a profiling approach. This report, entitled *The School Shooter: A Threat Assessment Perspective* (O'Toole, 2000), has been widely disseminated and is available at <www.fbi.gov>. On page 1, the report states:

> This model is not a "profile" of the school shooter or a checklist of danger signs pointing to the next adolescent who will bring lethal violence to a school. Those things do not exist. Although the risk of an actual shooting incident at any one school is very low, threats of violence are potentially a problem at any school. Once a threat is made, having a fair, rational, and standardized method of evaluating and responding to threats is critically important.

In this report, the FBI recommended that schools establish multidisciplinary teams to manage student threats of violence. The report gave considerable latitude to schools in determining the composition of the teams and how they would function. In general, teams would be headed by a threat coordinator selected from the school staff and would include a mental health professional and a representative from law enforcement. Teams would evaluate reported threats of violence using a "four-pronged assessment model." The four prongs are: (a) the personality and behavior of the student who made the threat, (b) the student's family dynamics, (c) the culture and climate of the school, and (d) the social dynamics of the larger community. The FBI report did not determine how the evaluation would be conducted, but emphasized that no specific combination of factors would definitively identify a student as violent. The FBI report concluded, "There is a compelling need to field test, evaluate, and further develop these threat assessment recommendations, and to develop appropriate interventions designed to respond to the mental health needs of the students involved. This is a pressing public health need which could be addressed through multidisciplinary collaboration by educators, mental health professionals and law enforcement" (p. 31).

The purpose of the present study is to report the results of a demonstration project in which guidelines were field-tested for schools to use in responding to student threats of violence. A demonstration project is an important step prior to conducting a controlled study because it provides an opportunity to field-test, observe, and refine the procedures and methods that constitute the proposed intervention, and in this case, to show that threat assessment is a viable procedure that could be used by schools and is worthy of further study. This study reports on the successful implementation of threat assessment guidelines and on the resolution of 188 cases of student threats during one school year.

Threat assessment represents a potentially valuable component of a comprehensive approach to school violence prevention (Osher, Dwyer, & Jackson, 2004). Sprague and colleagues (Sprague et al., 2001) investigated the effects of a school-wide approach that included

a school-wide discipline plan based on Effective Behavioral Support (Sugai & Horner, 1994) and a violence prevention curriculum. They studied the effects of the program in nine schools and reported both reductions in school discipline referrals and improvement in student knowledge of social skills (Sprague et al., 2001). Sugai, Sprague, Horner, and Walker (2000) recommended that school discipline referrals could serve an important role as a means of monitoring the effectiveness of school-wide interventions to reduce violent behavior.

More broadly, a recent meta-analysis of 221 school-based interventions that attempted to reduce aggressive behavior found an average effect size of .25 for well-implemented demonstration programs (Wilson, Lipsey, & Derzon, 2003). These authors (Wilson et al., 2003) estimated that an effect size of this magnitude would eliminate approximately half the incidents of fighting in a typical school year. School-based violence prevention programs can serve at least two functions related to threat assessment: (a) *threat prevention* in the form of school-wide programs to maintain an orderly and positive school climate and thereby minimize the conditions and circumstances in which threats develop; and (b) *threat intervention* in the form of programs to work with individual students to resolve student conflicts after a threat has been reported.

Method

Sample

The participating schools consisted of four high schools (Grades 9–12), six middle schools (Grades 6-8), 22 elementary schools (Grades K–5), and three alternative schools (Grades 7–12) in two adjacent school divisions. The two school divisions span a single county in central Virginia of 736 square miles that includes a population of 129,000 in urban, suburban, and rural areas. The combined enrollment of the two school divisions was 16,273 students, of which 71% were Caucasian, 22% African American, and 7% other groups. Approximately 26% of the students were eligible for free or reduced meals.

The sample consisted of all 188 cases of student threats reported by school principals (or assistant principals) during the 2001–2002 school year. These cases included 146 boys and 42 girls distributed across grade levels as displayed in Table 1. The students making the threats were identified as Caucasian (54.8%), African American (43.1%), or Hispanic (1.1%). Fifty-one percent of these students were eligible for free or reduced school meals.

Procedures

Following release of the FBI's report, the Virginia Youth Violence Project developed specific guidelines and procedures for schools derived from the FBI's threat assessment recommendations. The process is described in more detail elsewhere (Cornell et al., in press). In brief, the purpose of this study was to translate general principles of threat assessment into practices that could guide the actions of school personnel in dealing with student threats of violence. This study began by convening a school work group consisting of school personnel from two local school divisions. Each school division assigned an assistant superintendent, a school principal, and a school psychologist to the group. The group also included the supervisor of school resource officers for each of the law enforcement agencies that serve the two divisions. In addition, over the course of 2 months of meetings, the group invited other school personnel and community leaders (e.g., special education personnel and local prosecutors) to participate in discussions.

The school work group was assisted by an expert advisory group that included two nationally recognized experts in violence risk assessment, two FBI authorities (the primary author of the FBI's school shooting report and another expert on juvenile crime), and three state officials with leadership roles in school safety and juvenile justice. These individuals provided invaluable advice and constructive criticisms as the guidelines were formulated.

The process of developing guidelines began by conducting telephone interviews with all of the school principals and psychologists in the two divisions. Principals were surveyed about the kinds of student threats that had come

Table 1
Student Threats of Violence in 35 Schools

Grade	Student Gender		Threatened Behavior						
	Girls	Boys	Hit	Kill	Shoot	Stab	Vague	Other	Total
Elementary									
K	3	2		4		1			5
1	0	6	1	1	2	1	1		6
2	0	7	3			2	2		7
3	3	24	11	4	5	4	1	2	27
4	5	22	11	6	4	1	3	2	27
5	3	11	8	2	2		2		14
Middle									
6	4	7	2	3	4	1	1		11
7	6	21	14	3	1		8	1	27
8	7	16	7	2	3	3	6	2	23
High									
9	5	15	10	1	1	2	4	2	20
10	2	8	6	1	2	1			10
11	3	5	1			2	4	1	8
12	1	2	3						3
Total	42	146	77	27	24	18	32	10	

Note. Threats to hit include physical assault without weapons. Vague threats include nonspecific threats to hurt or "get" another person. Other threats include bomb threats, kidnapping, or other indirect forms of injury.

to their attention in the past year and how these threats were resolved. They were asked what kinds of guidelines or policies would have helped them respond. The principals reported that student threats to hurt someone were a relatively common event, although few threats were regarded as serious. The most significant concerns were how to identify serious threats and how to respond to them. Principals from elementary, middle, and high schools expressed concern that there were no guidelines for evaluating student threats, and said that they relied on intuition in making decisions about the seriousness of a student's risk for violence. The school psychologists expressed concern that they had little training in how to conduct psychological evaluations of students who made threats of violence.

The concerns of principals and psychologists made it clear that threat assessment required a set of written guidelines to assist staff in making triage determinations of the seriousness of a threat. It was recognized that an elaborate process of threat assessment would be burdensome to school authorities and that it would be necessary to design an efficient process to distinguish the commonplace threats, which could be easily resolved, from more seri-

ous threats, which would require a more labor-intensive response. It was decided that the school principals would conduct the initial evaluation of a threat and make a triage decision, either resolving the threat immediately because it was not serious or initiating a more comprehensive team assessment if the threat was serious.

The group considered the work of the Dallas Independent School District, which developed a risk assessment instrument based on 18 items that a literature review suggested would be predictive of student violence (Ryan-Arredondo et al., 2001). Under the Dallas system, a school staff member rates each item and derives a summary score that is used to classify the student's risk of violence as low, medium, or high. When work on the present study began in the spring of 2001, there were no data available on the reliability or validity of this instrument (Bert Rakowitz, personal communication, May 29, 2001), but the items chosen for the scale and the experiences of the Dallas school personnel were informative and useful in developing the guidelines.

Ultimately, it was decided not to adopt a formally scored instrument such as the DVRA, in part because of the complexity of the threat assessment process (O'Toole, 2000; Reddy et al., 2001) and the limited state of knowledge in the field of student threat assessment. It was concluded that a set of guidelines would be more consistent with the recommendations of the FBI report and also would offer school authorities greater flexibility in considering contextual and situational factors associated with a student's threat of violence, which might not be reflected in a single risk score.

Decision-tree model. A decision tree was developed that would guide school officials through the threat assessment process, starting with the report of a threat to the school principal or assistant principal. The decision tree was designed to follow a procedure that school staff would find to be most consistent with existing school practices and would permit them to make practical decisions in an efficient manner. The first step in the threat assessment process was for the principal (or assistant principal) to gather information about the threat for triage purposes—to determine whether the threat could be quickly resolved or would require protective action and further evaluation and intervention.

As discussed elsewhere (Cornell et al., in press), the principal (or assistant principal) was identified as the head of the threat assessment team because principals are in charge of discipline and have ultimate responsibility for student safety and security. Our work group did not believe it would be feasible to have someone other than the school principal in charge of such a critical matter. Furthermore, it was anticipated that in most cases the principal would be able to investigate and resolve a nonserious threat with little or no involvement by the full threat assessment team, but that in more serious cases, the principal would involve the full team. This arrangement gives broad discretion and authority to the principal, but in fact, this is not a change from standard procedure in most schools for student discipline and safety matters.

The model specified important information the principal should obtain in interviewing the student who made the threat, but no formal training of school principals was attempted, recognizing that principals are experienced in interviewing children about disciplinary and behavioral matters. The *Guidelines* for the present study directed the principal to ask a series of questions intended to cover what happened, what the student meant by the threat, how the student perceived others to feel about the threat, the student's reasons for making the threat, and whether the student intended to carry out the threat. Therefore, the questions began with asking the student *what happened*—what he or she said, and what he or she did. The principals were instructed to write down exactly what the student admitted, and then to inquire what the student *meant* by his or her statements and actions (e.g., "What did you mean when you said that?") and what did the student think the other person or persons who were threatened (or who witnessed the threat) felt about what was said. Next, the principal should ask the *reasons* for what the student said and in particular, to find out if there was a prior history of conflict. Finally, the principal should ask what the student *intends* to do. All of this information would be consid-

ered in determining whether the student had made a transient threat that could be readily resolved or a more serious, substantive threat.

It was recognized that students might not be completely accurate or truthful participants in the interview, and principals were advised to interview witnesses using a parallel set of questions. Principals were also directed to err on the conservative side and to assume that a threat was serious if they had doubt about the accuracy of the information they obtained. A key point in training principals and all team members is that each threat must be evaluated within its own context; a threatening statement could not be judged out of context—the circumstances and manner in which the threat was expressed could completely alter the seriousness of the threat and how to respond to it.

A threat was defined as any expression of intent to harm someone. Consistent with the FBI report (O'Toole, 2000), it was recognized that threats could be spoken, written, or expressed in behavior such as gestures. Threats could be made directly to the intended victim, communicated to third parties, or expressed in private writings. Possession of a weapon such as a firearm or knife on school grounds would be presumed to constitute a threat, unless subsequent investigation found otherwise. In contrast to zero tolerance policies, toy guns were not considered the same as real guns, and common objects such as nail files or plastic knives were not necessarily considered to be threatening weapons. Any potential weapon was to be judged based on the threat of injury it posed to others. How the student used or threatened to use the weapon was most important.

If there was doubt whether a student's actions constituted a threat, the guidelines called for the team to investigate the behavior as a threat. However, all forms of aggressive behavior would not necessarily indicate a threat of future violence. For example, if two students insulted one another or even got into a fight, their behavior would not be investigated as a threat unless one of them expressed intent to harm the other in the future. Schools would follow their regular discipline practices for disruptive behavior or fighting; threat assessment would function as an additional component of the school's response when there was some indication of future action. From this perspective, threat assessment is not an approach to student discipline, but rather a means of preventing future acts of violence.

Transient versus substantive threats. Based on triage interviews and consideration of the overall context of the threat, the principal's next step was to classify the threat as *transient* or *substantive* (Cornell et al., in press). Transient threats were statements that do not express a lasting intent to harm someone and can be resolved with an apology or explanation. These were the threats that principals told us they encountered frequently and were able to address as a routine disciplinary matter. Transient threats reflect feelings that dissipate rapidly when the student considers what he or she has said. Transient statements might be made in a moment of anger, but are retracted when the student calms down. Transient threats also might be made as a tactic in an argument or during an exchange of insults, or they might be intended as jokes or figures of speech. The most important feature of a transient threat is that the student does not have a sustained intention to harm someone. Transient threats might merit a disciplinary response, but there is no need to take protective action to prevent a future act of violence because the threat is short-lived.

Substantive threats are serious in the sense that they represent a sustained intent to harm someone beyond the immediate situation where the threat was made. If there is doubt whether a threat is transient or substantive, the threat is treated as a substantive threat. Substantive threats could be identified by five *presumptive* indicators, derived from the FBI report (O'Toole, 2000): (a) the threat has specific plausible details, such as a specific victim, time, place and method of assault; (b) the threat has been repeated over time or related to multiple persons; (c) the threat is reported as a plan, or planning has taken place; (d) the student has recruited accomplices or has invited an audience to observe the threat being carried out; or (e) there is physical evidence of intent to carry out the threat, such as a weapon, bomb materials, a map or written plan, or a list of intended victims. Although the presence

of any one of these features may lead the school administrator to presume the threat is substantive, none are absolute indicators and it is possible that with additional investigation other facts could indicate that the threat is transient. For example, a student who seeks an accomplice to help in carrying out a threat might be presumed to have a serious intent to harm someone, but several cases were observed in which an angry student enlisted a classmate to help send a threatening letter to another student as an act of revenge or intimidation. Such an incident would be handled as a serious disciplinary matter, but not as a serious threat. In essence, threat assessment teams must always take into account the context of the threat and make reasoned judgments based on all available information. The guidelines assist the team in its investigation and guide it through a series of decisions, but permit flexibility in considering situational factors and circumstances.

The distinction between transient and substantive threats captured an important difference in how schools can respond to student threats at the lower end of the risk continuum, but how should schools differentiate among threats at the higher end? A genuine threat to shoot someone clearly warrants a more extensive response than a threat to hit someone. Therefore, a further distinction within the category of substantive threats was needed. The legal distinction between simple assault and aggravated or felonious assault was considered, and a legal requirement in Virginia for school officials to report felonious assaults to law enforcement was recognized. This led to the designation of substantive threats to assault someone as *serious* substantive threats, and to the classification of substantive threats to commit an aggravated or felonious assault as *very serious* substantive threats. Very serious threats would include all substantive threats to kill, sexually assault, or inflict major injury on someone. Threats to injure someone with a weapon also would be regarded as very serious, because of the potential to inflict severe injury.

All substantive threats require the school administrator to take some form of protective action to prevent the threatened act of violence from being carried out. Protective action would begin with counseling the student against carrying out the threat and contacting the student's parents to enlist their assistance. In addition, the school administrator would contact the intended target of the threat, and if the target was a student, the student's parents. Further protective steps would be taken according to the nature of the threat, but generally involve consultation with other threat assessment team members, such as the school resource officer, the school psychologist, and the school counselor. After initial efforts to assure the immediate safety of all parties, the threat assessment team would conduct further assessment in order to develop an intervention plan to address any problems or issues (e.g., bullying) that precipitated the threat. In cases of very serious substantive threats, it is recommended that the student be suspended from school until a plan can be formulated.

Mental health assessment of very serious threats. The guidelines for the present study specify the role and function of school psychologists in threat assessment. As a threat assessment team member, the school psychologist may be asked to consult on any case in an advisory capacity, but responsibility for team leadership resides with the school principal. The school psychologist has the specific function of conducting a mental health assessment of students who make very serious substantive threats. The purpose of this assessment is twofold: (a) to determine if the student has mental health treatment needs associated with the threat (e.g., a student is psychotic or suicidal and in need of immediate treatment); and (b) to gather information about the student's motives in making the threat, so that the team might identify strategies for reducing the risk of violence (e.g., resolving a peer dispute or identifying a bully-victim relationship). This function was carefully delineated in order to prevent situations in which school psychologists might be asked to undertake evaluations that go beyond typical expertise and training (Morrison, Furlong, & Morrison, 1994).

The training for this project emphasized that the mental health assessment conducted by the school psychologist is not intended to render a prediction whether the student will or will not commit a violent act. The prediction

of violence is a complex and uncertain task, and communications about violence risk are easily misstated or misinterpreted (Borum, 1996). Although there is evidence that clinicians can make reasonably accurate short-term predictions of violence in some situations (Borum, 1996), little is known about the prediction of student violence, particularly in the context of active school intervention aimed at preventing violence (Mulvey & Cauffman, 2001).

A 10-page outline of topics and accompanying questions that the school psychologist should consider in interviewing the student was devised. These topics included a review of the threat and a history of the student's relationship with the intended victims, but also a broader review of the student's mental status, current level of stress, and family relations. Students were to be asked about their access to weapons, their exposure to violence, and their previous involvement in aggressive behavior and bullying as either victims or perpetrators. There were no specific psychological tests for this assessment, but psychologists were advised to make use of specialized tests (e.g., a depression inventory or an anger scale) that are clinically indicated. There were also recommendations for interviewing the student's parents covering a parallel set of topics. The results of the mental health assessment were summarized in a written report prepared for the threat assessment team. There was a report template and a sample report in the training materials.

Staff Training

A training manual was created and a series of training sessions conducted for all principals, assistant principals, psychologists, counselors, and school resource officers in the 35 participating schools in two school divisions. Each training participant received a training manual, *Guidelines for Responding to Student Threats of Violence* [1] (hereafter *Guidelines*). The initial version of the training manual, used in this study, consisted of four sections. The first section was an 18-page description of the threat assessment guidelines that explained each stage of the decision tree and provided short case examples. The second section described the process for conducting a mental health assessment of students judged to have made very serious substantive threats. This section explained the purpose of the mental health assessment and presented a list of topics to cover in interviewing the student and the student's parents. The section concluded with a report template and a sample report. The third section contained copies of electronic/digital slides used in the training sessions, followed by a short paper entitled "Patterns of youth violence." This paper integrated key points from the FBI report on school shootings (O'Toole, 2000) with the broader research literature on juvenile homicide (Cornell, 1999).

Due to scheduling constraints, training was provided in somewhat different formats for the two school divisions. For the larger school division, consisting of 24 schools, a series of half-day training sessions was held. Separate sessions were held for school principals, assistant principals, school psychologists, and school counselors. School resource officers attended one of the sessions for principals or assistant principals. The session for the school psychologists included staff from both school divisions and covered additional material on the mental health assessment of student threats that was not covered in the other sessions. For the smaller school division (11 schools), individual sessions were held at each school for the school's threat assessment team members. Several weeks later, there was a final 1-hour session held during an annual division-wide training day that brought staff together from all schools. Although the training sessions followed a different schedule in each school division, the same information was presented in both divisions and all participants received the same training manual.

The initial training session for all groups consisted of a presentation that began with the rationale for student threat assessment; this included a review of research on rates of school violence and a summary of the findings and recommendations of the FBI study of school shootings (O'Toole, 2000). Next, the trainers presented a step-by-step review of the *Guidelines*, beginning with the definition of a threat and the steps taken when a threat is reported to school authorities. The *Guidelines* are anchored

by a decision tree that leads from the evaluation of a reported threat to a determination of whether the threat is transient or substantive and, in the case of a substantive threat, to the development of a plan to reduce the risk of violence. The training session reviewed examples of transient and substantive cases, and the steps to follow in response to each type of threat.

After presentation of the decision tree and a review of sample cases, there was a session on legal issues, with particular emphasis on very serious substantive cases. There was a review of the school's legal obligation and authority to maintain school safety, followed by discussion of the circumstances in which school authorities would contact law enforcement, disclose confidential information, and initiate an emergency mental health assessment of a potentially dangerous student.

After the session on legal issues, the participants met in small groups to simulate their responses to a series of practice cases. The group leader presented participants with a hypothetical report of a threat and asked them to identify the first steps they would take in evaluating the threat. The group leader then presented more information about the threat as the group worked its way through the decision tree to the resolution of the threat. After the groups completed three cases, they reconvened in full session to compare and discuss the practice cases. Immediately after this discussion, participants completed a written quiz on their knowledge of the *Guidelines*.

Data Collection

Several procedures were in place to monitor school use of the *Guidelines* and assure reasonable compliance. The superintendents of each school division directed the principals to use the *Guidelines* and the associate superintendents reinforced this expectation in meetings and phone calls. The most common problem observed was that principals would use the *Guidelines* to resolve a student threat, but delay completing the paperwork needed to document the case. School principals reported cases by completing an electronic form at a secure website maintained by the researchers. This form served the dual purpose of providing schools with printed documentation of their response to a student threat and informing researchers of a new case, so that they could follow up with the principal.

The website form provided an additional check on school compliance with the *Guidelines*, because the form required principals to identify key information about the threat and report what actions had been taken. The form collected demographic information (age, gender, grade, race) on the student who made the threat and the intended threat victim and provided space for a description of the threat incident and the classification of the threat as transient or substantive. The form also presented a checklist of actions taken in response to the threat (e.g., suspending or expelling the student, assigning detention, contacting police).

A graduate student research liaison was assigned to each school and remained in contact with the school principals over the course of the school year. The liaison was available to assist team members in interpreting the *Guidelines* and help assure that they were being followed. The liaisons conducted face-to-face follow-up interviews to collect additional case information. Follow-up interviews were conducted for each case on two occasions, during the final weeks of the school year and again the following fall. The average follow-up period from the date of the threat incident to the principal interview at the end of the school year was 148 days (range 3 to 282 days). The second follow-up interview occurred an average of 424 days after the threat incident.

In the follow-up interviews, researchers asked the school principals to describe the threat incident and what actions they took in response to the incident. Principals were asked whether the student carried out the threat and whether the student's relationship with the threat recipient was improved, about the same, or worse than prior to the threat. They were asked to rate the student's overall behavior at school after the incident as improved, about the same, or worse than prior to the threat.

Researchers were given an electronic data file extracted from the school's record of all disciplinary infractions for the school year. The file contained the disciplinary infractions

recorded for each student who made a threat and for a matched comparison group from each school. The comparison group consisted of students who had not made threats, selected at random from the homerooms of each student who made a threat. The comparison students were matched to students who made threats on gender, race, and grade level. Disciplinary infractions were grouped into violent incidents (such as fighting and battery), disorderly conduct (such as disrespect, using obscene language or gestures, and insubordination), and other incidents (such as vandalism, tardiness, and truancy).

Results

Description of Student Threats

There were 188 threats documented by school principals during the school year. Grade level, gender, and race (Caucasian versus non-Caucasian) for students who made threats and their intended victims were examined. Students at all grade levels made threats, as reported in Table 1. In 16 cases, a student made more than one threat, but for purposes of this study, each threat incident was treated as a separate case. Most of the victims of threats were other students (143), but there were 23 teachers, 6 other school staff members, and 16 cases involving multiple or nonspecific victims (e.g., "blow up the school"). In the 143 cases of a student threatening another student, the students tended to be in the same grade level; there were 23 cases in which a student threatened a student in a lower grade, 105 threats of students in the same grade, and 15 threats of students in a higher grade.

There were 146 threats made by boys and 42 by girls. Excluding 22 cases where a student threatened both a male and female victim, students tended to threaten persons of the same sex; in 84 cases (51%) boys threatened other males, in 44 cases (27%) boys threatened females, in 22 cases (13%) girls threatened other females, and in 16 cases (10%) girls threatened males. Gender concordance was 64%, kappa = .19, $p < .01$.

There were 103 threats made by Caucasian students and 85 by non-Caucasian students. Excluding 20 cases where a student threatened victims of multiple races, students tended to threaten persons of the same race category (70%), kappa = .40, $p < .001$. In 76 cases (45%) Caucasian students threatened other Caucasians, in 16 cases (10%) Caucasians threatened non-Caucasian or minority students, in 34 cases (20%) minority students threatened Caucasians, and in 42 cases (25%) minority students threatened other minority students.

The most common threat was to hit or beat up the victim (77 cases, 41%). In addition, there were 27 threats to kill, 24 threats to shoot, and 18 threats to cut or stab. There were 32 cases in which the threat was vague or nonspecific ("I'm going to get you"), and 10 miscellaneous other threats, such as setting fires or detonating bombs.

Disciplinary Consequences

In 188 threat cases, only 3 students were expelled from school. The first case involved a sixth grade boy who was expelled after picking up a pair of scissors and threatening to stab a classmate. The second student was an eighth grade girl who was expelled for telling a classmate that she was going to shoot him. In the third case, a ninth grade girl was expelled after threatening to stab another student and found to have a knife in her locker. In each case, the decision to expel the student was based on consideration of the student's prior discipline infractions, as well as their behavior in making the threat.

Students were suspended from school in 94 (50%) cases. The modal suspension (32 cases) was 1 day, with a range of 1 to 10 days. In most cases, students were suspended from school as a disciplinary consequence determined by the school principal. In cases judged to be very serious substantive threats, students were suspended automatically according to the *Guidelines*. During this suspension, the school threat assessment team conducted a safety evaluation to determine whether it was safe for the student to return to school, and if not, what alternative educational arrangements would be appropriate. Out of 188 cases, only 12 students were placed in an alternative educational setting. This decision was not based solely on the threat incident, but took into consideration the student's entire disciplinary history and academic record.

Follow-up Reports

At the end of the school year school principals were interviewed to obtain follow-up information on each threat case in their school. In order to extend the follow-up period, each principal was interviewed a second time the following fall. Because of Institutional Review Board restrictions, no effort was made to contact students involved in the threats. School principals were asked three basic questions: (a) How has the student's behavior changed since the threat assessment? (b) How has the student's relationship with the threat recipient changed? and (c) Did the student carry out the threatened act of violence? In some cases, the principal did not feel he or she had sufficient information to answer the question (for example, if the student left school). In most cases (n = 176), the student's behavior was rated as improved (43%) or the same (39%), and in only 18% of cases did the student's behavior worsen. Principals rated the student's relationship with the threat recipient in 126 cases (excluding cases in which the principal did not feel sufficiently informed or the student did not threaten a specific individual). In nearly two-thirds (63%) of cases, the relationship was judged to be the same, in about one-third (32%) of cases it was improved, and in only 6 cases (5%) it was judged to be worse.

Perhaps the most critical question was whether the student carried out the threatened act of violence. According to the principals, none of the threats were carried out. (Data were available for 185 student threats; in three cases the principal was not sure if a student's threat to hit another student was carried out.)

Comparison of Transient and Substantive Threats

Of the 188 threat cases, 131 (70%) were judged by school authorities to be transient and 57 (30%) were judged to be substantive. The frequency of transient and substantive threats for each grade level is reported in Figure 1. Using school enrollment data, the rate of threats per 1,000 students for elementary, middle, and high schools was calculated. For transient threats, the rate was 11.33 per 1,000 students (90% confidence interval 9.24 to 13.90) for elementary school, 11.97 (confidence interval 8.84 to 16.15) for middle school, and 6.73 (4.77 to 9.46) for high school. For substantive threats, the rate was 2.10 per 1,000 students (confidence interval 1.30 to 3.38) for elementary school, 7.86 (5.44 to 11.36) for middle school, and 4.27 (2.80 to 6.51) for high school.

A chi-square test comparing elementary, middle, and high schools in type of threat was statistically significant, χ^2 (1, N=188) = 16.41, $p < .001$; contingency coefficient $C = .28$. At the elementary school level, only 15% (13 of 86) of threats were substantive, whereas at the middle and high school levels, the proportion of substantive threats was much higher, 41% (25 of 61) and 44% (18 of 41), respectively.

Transient and substantive cases in the gender and race of both the student who made the threat and the recipient or victim of the threat were compared. Male students made the majority of both transient (104 of 132, 79%) and substantive (42 of 56, 75%) threats; the association between gender and threat type was not statistically significant, χ^2 (1, N=188) = .33, p = .57. Minority students made 51% (67 of 132) of transient threats and 41% (23 of 56) of substantive threats, χ^2 (1, N=188) = 1.48, p = .22.

Males were recipients of 60% (73 of 121) of transient threats and 60% (27 of 45) of substantive threats, χ^2 (1, N = 166) = .01, p = .97. (The N was 166 because some cases involved both male and female victims.) Minority students were recipients of 40% (53 of 132) of transient threats and 45% (25 of 56) of substantive threats, χ^2 (1, N=188) = .33, p = .57.

The next analyses compared transient and substantive cases in disciplinary consequences. All 3 students who were expelled from school made substantive threats. Students who made substantive threats (45 of 56 cases, 80%) were more likely to be suspended from school than were students who made transient threats (49 of 132 cases, 37%), χ^2 (1, N=188) = 29.40, $p < .001$, $C = .37$. Students who made transient threats (16 of 132 cases, 12%) received more after-school detentions than students who made substantive threats (2 of 54 cases, 4%), but the difference was not statistically significant, χ^2 (1, N =188) = 3.32, p = .068. Similarly, stu-

dents (22 of 132 cases, 17%) who made transient threats were more likely to receive an in-school detention or time-out than students who made substantive threats (3 of 56 cases, 5%); this difference was statistically significant, χ^2 $(1, N=188) = 4.36, p = .037, C = .15$.

Finally, principals' ratings of student behavior during the remainder of the school year were examined. Principals rated the student's behavior as improved, about the same, or worse during the remainder of the school year following the threat. The ratings for students who made transient threats (51 improved, 57 same, 16 worse) indicated more positive behavior than for the students who made substantive threats (25 improved, 12 same, 15 worse), χ^2 $(1, N = 176) = 10.59, p = .005, C = .24$. Similarly, when principals rated the student's relationship with the threat recipient, the ratings for transient cases (31 improved, 57 same, 1 worse) were more positive than for substantive cases (9 improved, 23 same, 5 worse), χ^2 $(1, N=126) = 9.35, p = .009, C = .26$.

Discussion

This field-test study was intended to demonstrate the viability of threat assessment as a school-based procedure for responding to student threats of violence. School administrators were trained to lead threat assessment teams composed of school psychologists, counselors, and resource officers. The teams used a decision tree to distinguish between transient threats that could be quickly resolved and substantive threats that required protective action. Substantive threats were classified as serious if they involved a threat of assault and very serious if they involved a threat of felonious assault that could result in severe injury or death to the victim. In very serious cases, students were referred for a mental health assessment designed to gain insight into the reasons for the student's threat and to identify strategies for reducing the risk of violence.

Threat assessment teams consisted of a principal, a school psychologist, a school resource officer, and a school counselor. Conceivably, team roles can be adapted to match the resources available in each school, but it was found that this arrangement worked well. A more detailed rationale for team roles is presented elsewhere (Cornell et al., in press). The teams were led by the principal or by an assistant principal designated with responsibility for student discipline. The team leader conducts the initial assessment of the threat to determine whether the threat should be classified as transient or substantive and then engages other team members as needed.

The school resource officer is contacted in an emergency, in substantive cases, or whenever a student's threat raises concern about a legal violation. In Virginia, threats can be legal violations if they put the victim in fear. In most cases, however, a school resource officer will not seek charges against a student unless there are additional accompanying violations, such as illegal possession of a weapon or bat-

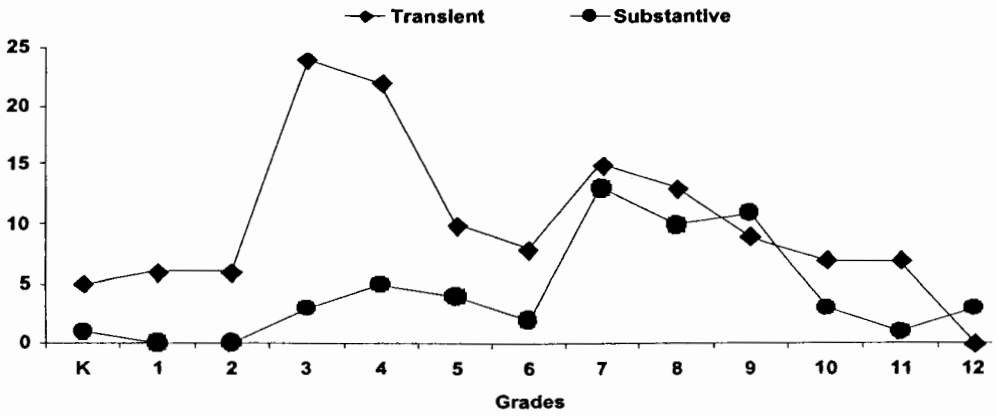

Figure 2. Number of transient and substantive threats for each grade level.

tery of the victim. Beyond law enforcement functions, the school resource officer assists in prevention efforts by monitoring students who have made threats and by warning and counseling students about conflicts that engendered threats. For example, in a number of cases the student who made a threat complained that he or she was being bullied by other students. The school resource officer became involved in making sure that the bullying did not continue.

In many cases, the school psychologist served as a consultant to the principal, clarifying the *Guidelines* and helping to identify indications that a threat was transient or substantive. This role is consistent with the view that school psychologists should have a central role in school violence prevention efforts (Cole, 2003; Furlong, Morrison, & Pavelski, 2000). The school psychologist becomes most fully involved in very serious substantive cases. The school psychologist should be notified immediately in such cases so that he or she can begin a mental health assessment of the student. It should be emphasized that this assessment is not designed to predict whether the student will carry out the threat, but has different objectives. The immediate objective is to determine if the student has mental health treatment needs that require services such as hospitalization or referral for other mental health treatment. School psychologists routinely engage in these kinds of evaluations when a student threatens suicide or is referred for immediate evaluation in a crisis situation, and increasingly they are asked to conduct some form of assessment of potentially dangerous students (Barnhill, 2003; Sandoval & Brock, 1996).

The school psychologist's secondary objective is to ascertain as much information as possible about the reasons for the student's threat, so that a plan can be formulated by the team to address the problems or concerns that underlie the threat. This objective can be understood as a *risk reduction* or *risk management* approach, as distinguished from purely a prediction approach (Heilbrun, 1997). This objective is consistent with the school psychologist's role, specifically in planning violence prevention programs (Furlong et al., 2000; Furlong, Paige, & Osher, 2003) and more generally in conducting a functional behavioral assessment and developing behavior intervention plans to address problems in a student's relationships with others (Drasgow & Yell, 2001). These two objectives—identification of immediate treatment needs and development of a threat reduction plan—are consistent with school psychology training and practice, and so capitalize on the school psychologist's strengths and expertise (Cole, 2003; Furlong et al., 2000).

The school counselor is usually involved in counseling the student or providing other services—such as conflict mediation or resolution of bullying. In some cases, the counselor was the direct provider of these services and in other cases, the counselor facilitated services provided by others and monitored the student. It is recommended that threat assessment teams make use of well-established violence intervention programs as part of a comprehensive, school-wide approach (Nelson, 1996; Sprague et al., 2001; Walker & Epstein, 2001; Wilson et al., 2003).

The most extensively studied programs to reduce student violence are designed to enhance students' social competence (Wilson et al., 2003). A typical social competence program includes lesson plans to teach students how to resolve peer conflicts. Such lessons may use role-playing and demonstration exercises, and engage students in practicing communication skills such as how to deflect criticism and assert their opinions in a nonprovocative manner. An excellent example of a social competence program is the Second Step program described by Frey, Hirschstein, and Guzzo (2000) and used by Sprague et al. (2001). Some social competence programs include a cognitive-behavioral component in which students learn relaxation techniques, practice self-monitoring, or rehearse step-by-step procedures for thinking through problems (Wilson et al., 2003).

Data collected from 35 schools over the course of 1 school year revealed 188 student threats of violence reported to school authorities. These cases involved threats to hit (41%), kill (14%), shoot (13%), stab (10%), or harm someone in some other way (22%). Nevertheless, threat assessment teams demonstrated differential decision making in how they re-

garded these threats and considerable restraint in the disciplinary consequences they imposed. The overwhelming majority of threats (70%) were judged to be transient threats that could be quickly and easily resolved. Only 3 students were expelled from school. School suspension was used in 50% of the cases, with a modal suspension of just 1 day.

Follow-up interviews with school principals (185 of 188 cases) indicated generally positive outcomes from the threat assessment at the end of the school year. Student behavior was judged to be improved in 43% of cases and worse in only 18% of cases. The student's relationship with the intended victim was judged to be improved in 32% of cases and worse in just 5% of cases. Of most importance, the principals reported that none of the threats were carried out.

These positive findings must be tempered by recognition of several limitations. First and foremost, this was a field-test study and not an experimental comparison between different approaches to student threats. There was no comparison group to assess how threats would have been resolved using some other method. A formal comparison with one or more alternative methods would be an appropriate next step, now that the threat assessment model has been devised and field-tested. However, it is noteworthy that any school division following a strict zero tolerance policy for student threats would have had a much higher rate of expulsion.

The finding that none of the threats were carried out is encouraging, but we acknowledge that we relied on the observation of school principals. Although it is conceivable that some threats to hit a classmate were carried out without anyone having reported the incident to school authorities, it is highly unlikely that any of the threatened parties were injured, shot, or stabbed. The absence of violent outcomes in this study is difficult to interpret without knowledge of the base rate for student threats and the likelihood that threats will be carried out, topics that have received little research attention.

Student threats were investigated after they were brought to the attention of school authorities. Several studies have relied upon office referrals as an index of school climate or a marker of effective school discipline (Sprague et al., 2001; Sugai et al., 2000). However, office referrals do not encompass the full range of students identified by teachers as exhibiting behavior problems warranting intervention (Nelson, Benner, Reid, Epstein, & Currin, 2002).

Anonymous self-report studies do indicate that student threats of violence occur with surprising frequency. Cornell and Loper (1996) reported results from a survey of 10,909 students (Grades 7, 9, and 11) in which more than one-fourth of students replied "yes" to the item "Someone threatened to hurt you at school" in the past 30 days. Singer and Flannery (2000) presented results of three school surveys totaling 9,487 students in three states; they found that among male students, more than one-third of elementary school students and more than one-half of high school students reported threatening someone within the past year. Among female students, more than one-quarter of elementary students and more than one-third of high school students reported making a threat in the past year. More than 10% of all students reported threatening someone frequently ("often" or "almost every day"). These findings suggest that students make far more threats of violence than are reported to school authorities. In the present study, 188 threats were reported in schools with a total enrollment of 16,273. If just 10% of students made a threat at school every month, one could very conservatively expect more than 14,600 threats over the course of the school year. Clearly there is a chasm between the numbers of threats that students report on self-report surveys and the numbers that come to the attention of school authorities for intervention. We do not conclude from this that students are in grave danger due to a multitude of serious, undetected threats. On the contrary, we believe that the pervasiveness of student threats indicates that most threats are not serious. This is a topic worthy of further study.

Singer and Flannery (2000) did not ask students whether they carried out their threats, but they did obtain reports of other aggressive behaviors during the same period. Their findings suggest that threats are linked to other aggressive behavior. Students who reported threatening others were 3 to 4 times more likely

to report aggressive behaviors such as hitting, beating, and attacking with a knife. Notably, high school students who threatened others frequently were nearly 20 times more likely to report beating someone, and 24 times more likely to report attacking someone with a knife, than students who had never threatened anyone. These findings must be tempered by recognition of the limitations of student self-report and the potential for exaggerated student responses (Cornell & Loper, 1998; Furlong, Morrison, Cornell, & Skiba, 2004), but they indicate the need for direct study of student threats, how threats come to the attention of school authorities, and how frequently threats are carried out.

Threat assessment seems to be relevant for elementary, middle, and high schools, because threats were reported in all grade levels. Even substantive threats were identified at all school levels, from kindergarten through 12th grade. As might be expected, transient threats outnumbered substantive threats by about six to one in elementary school; however, for middle and high schools, the proportion of substantive threats was more than 40%. A particular increase in transient threats was noticed at Grades 3 and 4. Anecdotally, school authorities reported that when students reached these grade levels, they began to demonstrate more competitive friendship networks. Students seemed more likely to make threatening remarks to one another in response to rivalries for friendship and peer status. Another spike in threats was observed in middle school, particularly Grades 7 and 8. Middle school principals observed that the increase in threats mirrored a general increase in disciplinary violations in these grades. Similarly, a decline in threats from Grades 9 to 12 is consistent with disciplinary trends in high school.

One implication of the findings in the present study is that students may benefit from instruction about the use of threatening language. Just as air travelers have learned not to make threatening remarks in airports—even in jest—so students may need to learn that threatening statements are taken seriously at school. One middle school invited a juvenile court prosecutor and a police officer to a school assembly, where they explained to students the legal consequences of threatening others, stalking, assault, and related criminal behavior.

Threat assessment should be clearly distinguished from discipline. Discipline involves punishment for prohibited behavior, whereas the goal of threat assessment is the prevention of future behavior that would harm others. A threatening behavior might deserve serious disciplinary consequences even if the risk of future violence is determined to be negligible. For example, a student who makes a bomb threat may receive serious disciplinary consequences, even though the bomb is nonexistent and the student's behavior was intended only as a prank. Implementation of threat assessment is no substitute for an effective school discipline policy, and ideally should be used in coordination with a proactive and systematic discipline system (Nelson, 1996; Sprague et al., 2001; Sugai et al., 2000).

Transient and substantive threats. These threat assessment guidelines introduce a distinction between substantive and transient threats. Although this is new terminology, we hoped it would reflect an implicit, practical distinction that school authorities have long made between threats that are considered serious and those that do not appear to communicate a sustained intent to injure someone. Further distinctions were considered, such as between threats that are communicated as jokes, sarcasm, insults, figures of speech, angry rhetoric, and so forth, but a practical advantage was not seen in doing so because for the purposes of threat assessment, the critical issue is whether the threat incident can be resolved immediately or requires that school authorities take protective action and conduct further assessment.

These findings lend support to the construct validity of the transient/substantive distinction, although certainly more study is needed. Students who made transient threats in this study generally exhibited fewer behavior problems during the remainder of the school year than did students who made substantive threats, and principals gave them more positive ratings for their overall behavior and for their relationship with the threat recipient. It is important to study the interpersonal circumstances and student behaviors that help distin-

guish transient and substantive threats, and how students who make a transient threat differ from those who make a substantive threat.

One of the important practical implications of this study is that school authorities need not respond to all threats in the same manner or with the same consequences. Most threatening statements can be addressed as transient threats in which the student retracts the threat and offers an appropriate apology or explanation that resolves the incident. Even in cases of substantive threats, where school authorities have an obligation to take protective action and formulate a plan to prevent an act of violence from occurring, the threat incident can be handled without resorting to expulsion or long-term suspension.

The qualitative distinction between transient and substantive threats shifts the focus of threat assessment away from highly uncertain efforts to quantify the risk of violence along a continuum from 0 to 100% and instead concentrates staff efforts on identifying interventions appropriate to the nature and circumstances of the threat. In essence, transient threats are cases in which the risk of violence after the threat incident is negligible, either because the student never intended to harm someone or some immediate intervention was successful in resolving the conflict or dispute that generated the threat. All cases in which there is a continuing risk of violence are regarded as substantive, and the further distinction between serious and very serious substantive cases is concerned with severity of injury, not a hypothesized likelihood of violence. Whether the risk of violence is 25%, 50%, or some other value, school authorities have a responsibility to take protective actions that are appropriate to the circumstances of the case. Such actions typically include counseling and warning the student, consulting with the school resource officer, and notifying potential victims. The threat assessment team also determines whether there is an appropriate psychological service or behavioral intervention that is reasonably related to the source of the threat or has the potential to reduce the likelihood that the threat will be carried out.

This approach to threat assessment does not preclude the possibility of developing quantitative measures of the risk of student violence in future research, and using those measures to guide student interventions. However, schools have an immediate need to deal with student threats, and we contend that the distinction between transient and substantive threats has both practical and heuristic value in guiding school responses to student threats.

Future study. There are several directions for future study, beginning with the need for investigation of the rates of reported and unreported student threats. It seems important to learn how students respond to threats, how they determine that a threat is serious, and what factors influence their decision to seek help. Studies of bullying indicate that a large proportion of students do not seek help from adults when they are bullied, although most students do seek help if the bullying continues (Unnever & Cornell, 2004). Evidently, most students do not seek help in response to student threats, perhaps because they do not regard the threat as serious or feel that they can resolve the situation without adult assistance.

More insight is needed into various means of resolving threats that do come to the attention of school authorities. Are there qualitative differences between reported and unreported threats, and do reported threats carry a greater risk of violence? And what methods (e.g., mediation, individual counseling, disciplinary consequences) are most effective for each kind of threat? Schools have an obligation to respond to reported threats, so a "no-response" comparison is not possible. However, it would be useful to compare threat-resolution strategies, recognizing that the critical outcome variables should go beyond whether the threat is carried out, because violent outcomes should be very low in all circumstances. It would be particularly useful to study emotional, social, and academic outcomes for the students who made threats as well as for threat recipients.

Finally, it would be useful to identify the key systems variables that contribute to the successful implementation of a threat assessment program. Our observations lead us to emphasize three factors. First, it is important for the team to have a common base of information about the nature and scope of school violence, and a shared conceptual framework

concerning student threats, to resist fears of school shootings that provoke extreme responses. Second, a multidisciplinary team-oriented approach is helpful for a variety of reasons, including the greater expertise and resources that can be brought to bear on a problem and the increased confidence of decision makers (i.e., school administrators) that they are taking a safe and appropriate course of action. Third, strong administrative leadership in the superintendent's office of each school division is critical in supporting the implementation of a division-wide approach.

In 1994, *School Psychology Review* published a prescient miniseries on school violence (Furlong & Morrison, 1994) several years in advance of the school shootings in Paducah, Jonesboro, Littleton, and other communities that gained nationwide attention and greatly stimulated the use of zero tolerance practices. In retrospect, the miniseries was a useful call for action in school psychology, and anticipated current concerns with topics ranging from bullying to crisis intervention to violence prevention. It is hoped that the positive results of this study will stimulate further work on threat assessment guidelines as a safe and effective means of responding to student threats of violence.

Footnote

[1] The training manual was devised for use when accompanied by direct training in use of the threat assessment guidelines. Based on field-test experiences, the manual was revised to include two dozen case examples that were resolved by threat assessment and a section with answers to frequently asked questions. A more extensive, stand-alone publication is in preparation (Cornell & Sheras, in press).

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Threats of Violence by Students in Special Education

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ABSTRACT: We compared threats of violence made by K–12 students in special education (120 cases) or general education (136 cases) in schools that were implementing threat assessment guidelines for managing student threats of violence (Cornell, Sheras, Kaplan, McConville, Posey, Levy-Elkon, et al., 2004; Cornell & Sheras, in press). Students in special education made disproportionately more threats, as well as more severe threats, than peers in general education. Students classified as emotionally disturbed (ED) exhibited the highest threat rates. Nevertheless, use of school suspension as a disciplinary consequence for threats was consistent for students in special and general education, and few students were expelled. Our findings support the use of threat assessment to manage threats of violence by students in special education.

Based on its study of school shooting incidents, the Federal Bureau of Investigation (FBI; O'Toole, 2000) advised schools to abandon efforts to develop profiles of potentially violent students and instead to focus intervention efforts on students who communicate explicit threats of violence. Similarly, a joint report of the U.S. Secret Service and the U.S. Department of Education recommended that schools establish threat assessment teams (Fein, Vossekuil, Pollack, Borum, Modzeleski, & Reddy, 2002). In response to these recommendations, the Virginia Youth Violence Project at the University of Virginia developed detailed practice guidelines for schools to use in conducting threat assessments (Cornell & Sheras, in press). These guidelines were successfully field-tested in 35 schools for one academic year (Cornell, Sheras, Kaplan, McConville, Posey, Levy-Elkon, et al., 2004). The purpose of the present study is to compare the threat behaviors of students receiving special education services and students in general education programs in schools that use these threat assessment guidelines.

Students receiving special education services incur a disproportionate number of school discipline infractions (Skiba, Peterson, & Williams, 1997; Wright & Dusek, 1998). For example, Skiba et al. found that 38.6% of a middle school's office referrals for discipline violations were for students in special education, even though only 15.6% of the school's population received special education services. Wright and Dusek found that in a sample of 230 discipline referrals for aggression collected over a two-year period in an elementary school, an average of 26% of students in special education had at least one referral for aggression per year versus only 8% of students in general education.

Students with disabilities are also more likely to receive out-of-school suspensions for endangering others and bringing weapons to school than are nondisabled peers (Rose, 1988). The 1994 Gun-Free Schools Act mandated that schools implement a one-year expulsion, with provisions for a shortened exclusionary period on a case-by-case basis, for any student in possession of a weapon on school grounds. Although the mandated federal report does not include the number of students with disabilities who are expelled, it does provide data on the disability status of those who receive a shortened expulsion. During the 2000–2001 school year, students with disabilities represented 28% of the shortened expulsions under the act (U.S. Department of Education, 2003).

Morrison and D'Incau (1997) found that students with disabilities received recommendations for expulsion at nearly twice the expected rate over a two-year period in a school district that implemented a zero-tolerance policy. The authors attributed several risk factors to the 158 students recommended for expulsion, including below-average grades

and achievement scores and truancy. In particular, records of students with disabilities often identified chronic emotional and family problems beginning at early ages. Although the authors did not conclude that the students with disabilities were unfairly treated under the school's discipline policy, they stated that these students' overrepresentation in the sample recommended for expulsion should not come as a surprise, given the academic and emotional challenges they faced.

Furthermore, McFadden, Marsh, Price, and Hwang (1992) reported differences in the administration of punishment to students with and without disabilities for equivalent offenses. A higher proportion of students with a disability (56%) received corporal punishment for fighting than students without a disability (36%). In fact, corporal punishment was the most common consequence for misbehavior by students with disabilities (40%). Students with disabilities (18%) were less likely to receive in-school suspension for defiance of school authority than were nondisabled peers (45%). The authors concluded, "Commission of the most common school offenses would more likely result in corporal punishment for the handicapped and internal suspension for the non-handicapped" (p. 247).

Zero-tolerance policies are intended as a means of protecting students from threatening or potentially dangerous behavior, but in practice such policies can result in harsh punishment for seemingly minor infractions such as accidentally bringing a plastic knife or toy gun to school (Skiba & Peterson, 1999). For instance, a second grader was suspended and sent to an alternative school for one month for bringing to "show and tell" a watch attached to a one-inch pocketknife (Skiba & Peterson, 1999). Another school division implemented a zero-tolerance policy for all use of threatening statements but had to repeal the policy when it led to 50 suspensions in a period of six weeks, largely of students from kindergarten through third grade (Zernike, 2001). The widespread use of zero-tolerance policies poses particular risk for students whose disabling condition might predispose them to engage in impulsive behavior or make rash statements that are interpreted as threats.

Special Education Classification

Among students in special education, several groups appear to experience higher rates of disciplinary violations. Students who suffer from an emotional disturbance are particularly at risk for discipline violations (McFadden et al., 1992; Conroy, Katsiyannis, Clark, Gable, & Fox, 2002) and often receive harsh punishments for their infractions (Skiba et al., 1997). Research has also shown that students who receive special education services for learning disabilities (LD) also have elevated rates of disciplinary infractions (McFadden et al., 1992; Skiba et al., 1997; Sprague, Walker, Stieber, Simonsen, Nishioka, & Wagner, 2001). Children diagnosed with attention deficit–hyperactivity disorder (ADHD), who may receive services under the other health impaired (OHI) classification, have significantly greater rates of disciplinary violations, suspensions, and expulsions than other students (Barkley, Fischer, Edelbrock, & Smallish, 1990; Murphy & Barkley, 1996). Although these studies identify special education classifications with a higher rate of disciplinary violations, no study has investigated the frequency of threats of violence and the associated disciplinary consequences for these threats.

Discipline and Special Education

What is an appropriate response to a student in special education who has made a threat of violence? According to the Individuals with Disabilities Education Act (IDEA Amendments, 1997) and the Office of Special Education Programs (OSEP), disciplinary decisions for students in special education require that "there must be a balanced approach to the issue of discipline of students with disabilities that reflects the need for orderly and safe schools and the need to protect the right of students with disabilities to a free and appropriate public education" (OSEP, 1997).

Difficulties in maintaining a balance between school safety and the student's right to a free and appropriate public education have led to confusion and frustration for many school administrators in deciding on appropriate disciplinary consequences for students in special education (Skiba, 2002; Taylor & Baker, 2002). A student with a disability cannot receive standard disciplinary consequences for behavior that is a manifestation of his or her disability. Skiba cited the lack of available measures for the purpose of manifestation determination decisions as a flaw in the IDEA

disciplinary requirements. Skiba observed that some school authorities feel that IDEA deprives "schools and school districts of tools—school suspension and expulsion—needed to ensure school discipline" (p. 87).

Threat Assessment

Threat assessment is an approach to violence prevention originally developed by the U.S. Secret Service based on studies of persons who attacked or threatened to attack public officials (Fein, Vossekuil, & Holden, 1995). Threat assessment has evolved into a standard approach to analyze many different dangerous situations, such as threats of workplace violence, and more recently, school violence (Reddy, Borum, Berglund, Vossekuil, Fein, & Modzeleski, 2001). A threat assessment is conducted when a person (or persons) threatens to commit a violent act or engages in behavior that appears to threaten an act of violence. Threat assessment is a process of evaluating the threat and the circumstances surrounding the threat to uncover any facts or evidence that indicate the threat is likely to be carried out.

Threat assessment differs from a zero-tolerance approach because of its emphasis on the context and meaning of the student's behavior. For example, under a zero-tolerance approach, a student would be disciplined for any possession of a weapon, regardless of the reason or circumstances of the behavior. Under a threat-assessment approach, however, school authorities would consider the reason why the student had a weapon, the danger posed by the weapon, and what the student intended to do with it. Threat assessment distinguishes toy guns from real guns and unintentional possession of a weapon from use of a weapon to threaten or intimidate someone (Cornell & Sheras, in press). Threat assessment may be particularly relevant for students in special education who make threats of violence, because administrators are guided to make informed disciplinary decisions based on a careful review of the details and context in which the threat occurred. In contrast, a zero-tolerance policy would impose harsh penalties without consideration of the context and meaning of the behavior, and it thus runs the risk of punishing a disabled student for behavior that is a manifestation of his or her disability.

A literature search identified only one study reporting the frequency of threats made by students receiving special education services. Ryan-Arredondo, Renouf, Egyed, Doxey, Dobbins, Sanchez, et al. (2001) reported on the implementation of a risk assessment instrument in the Dallas Independent School District. The authors examined the results of 139 threats, of which 27% were made by students receiving special education services. Presumably, the proportion of threats made by students receiving special education services was higher than the proportion of such students in the school population, although this comparison was not reported. Of those students receiving special education services, 42% were classified ED and 34% LD.

The current study addressed four main questions: (1) Do students in special education make threats more frequently than students in general education? (2) Do students in special education make different kinds of threats than students in general education? (3) Do students in special education and general education receive different disciplinary consequences for their threats? (4) How do students in special and general education differ in their postthreat behavior?

Method

Participants

The core sample for this study was obtained from two school divisions participating in the original demonstration project to field-test threat assessment guidelines (Cornell, Sheras, Kaplan, Levy-Elkon, McConville, McKnight, et al., 2004). These school divisions consisted of 35 schools (22 elementary, 6 middle, 4 high, and 3 alternative schools) with a total student population of 16,273 students, of which 71% were Caucasian, 22% African American, and 7% other groups. Approximately 26% of the students were eligible for free or reduced-price meals. The two school divisions together served a small city and the surrounding county in central Virginia with a combined population of 129,000.

As described in detail elsewhere (Cornell, Sheras, Kaplan, Levy-Elkon et al., 2004; Cornell, Sheras, Kaplan, McConville et al., 2004), each school had a threat assessment team consisting of the school principal or assistant principal who led the team, the school's resource officer or a liaison police officer, a school psychologist, and a school counselor. A threat was defined

as any communication of intent to harm someone. Threats could be spoken, written, or expressed through gestures or possession of a weapon. Threats could be made directly to an individual or expressed to third parties. Whenever school authorities learned that a student had threatened to harm someone, the team leader began a threat assessment and documented the case on a standard form (described in a subsequent section).

The 35 team leaders reported 188 threats of violence during the school year. As shown in Table 1, boys made 78% (n = 146) of the threats and girls made 22% (n = 42). In addition, Caucasian (55%) and African American (43%) students made nearly all threats; a small number were made by students of Hispanic (1%) and other (1%) ethnic backgrounds.

To ensure a sufficiently large sample of threats from students receiving special education services, we supplemented the core sample with 68 cases collected over the next two years from the two original school divisions and two additional Virginia school divisions that received threat assessment training. These additional divisions consisted of 14 schools, of which 6 (1 high school, 3 middle schools, and 2 elementary schools) participated in reporting of threats. In these school divisions, 70% of the students were Caucasian, 28% were African American, and 2% were from other ethnic backgrounds. Thirty-nine percent of students received free and reduced-price lunch.

After the initial field-test year, schools were not required to document and report all student threats to the researchers, and as a result, some school principals did not participate in the reporting process. For this reason, the threats obtained in the supplemental sample were not included in analyses intended to measure the rate of threats relative to the general school population. The supplemental cases (also in Table 1) involved 53 boys and 15 girls, with an ethnic breakdown of Caucasian (68%), African American (28%), Hispanic (3%), and other (1%) ethnic backgrounds.

Measures

Threat ratings. Threats were coded for seriousness and content. On receiving a report of a student threat of violence, the team leader interviewed the student who made the threat and all available witnesses, guided by a standard set of questions. The team leader then prepared a written summary of the threat and completed a checklist of actions taken in response to the threat (Cornell & Sheras, in press). Based on this initial investigation, the team leader made an important distinction between threats that are serious, in the sense that they pose a continuing risk or danger to others, and those that are not serious, because they are readily resolved and do not pose a continuing risk. Threats that were not serious and were readily resolved were classified as transient threats. Serious threats were called substantive threats.

Transient threats are defined as behaviors that can be readily identified as expressions of anger or frustration—or perhaps inappropriate attempts at humor—but that dissipate quickly when the student has time to reflect on the meaning of what he or she has said. The most important feature of a transient threat is that the student does not have a sustained intention to harm someone. In contrast, substantive threats represent a sustained intent to harm someone beyond the immediate incident during which the threat was made. If there is doubt whether a threat is transient or substantive, the threat is regarded as substantive. Substantive threats were further classified as serious if they involved a threat to assault or beat up someone and very serious if they involved a threat to kill, use a weapon, severely injure, or rape someone.

Threat content was coded by the researchers with six categories: threats to kill, hit, shoot, or stab, vague threats in which the intended action was unclear (e.g., "you'd better watch your back"), and other threats (e.g., bomb threats) that did not fall into one of the first five categories.

Follow-up information. Discipline records were available for 184 out of 188 cases in the core sample, but not for the supplemental sample. Because schools used somewhat different discipline categories, we classified infractions into four categories: violence/weapons (e.g., fighting, battery, weapon possession), disorderly conduct (e.g., disrespect, using obscene language or gestures), bullying (e.g., bullying, threats, harassment), and other (e.g., tardiness, truancy, vandalism, drug/alcohol use). Schools also reported whether the student received a suspension (or expulsion) from school for the threat.

For cases in the core sample, research assistants conducted follow-up interviews with principals at the end of the school year. Principals were asked to rate each student's behavior as improved, about the same, or worse

TABLE 1
Demographic Information

	Core sample (n=188)	*Supplemental sample (n=68)*	*Full sample (n=256)*	X^2
Age				
Range	5 to 18	5 to 17	5 to 18	
Mean (SD)	11.6 (3.1)	11.8 (2.8)	11.6 (3.0)	
Race				6.2
Caucasian	103 (55%)	46 (68%)	149 (58%)	
African American	81 (43%)	19 (28%)	100 (39%)	
Hispanic	2 (1%)	2 (3%)	4 (2%)	
Other	2 (1%)	1 (1%)	3 (1%)	
Gender				0.0
Male	146 (78%)	53 (78%)	199 (78%)	
Female	42 (22%)	15 (22%)	57 (22%)	
Education status				1.9
General education	95 (50.5%)	41 (60%)	136 (53%)	
Special education—all	93 (49.5%)	27 (40%)	120 (47%)	
Classification				
ED	46	14	60	
LD	21	9	30	
OHI	16	4	20	
Other	10	0	10	
School level				1.2
Elementary	86 (46%)	26 (38%)	112 (44%)	
Middle	61 (33%)	25 (37%)	86 (34%)	
High	41 (21%)	17 (25%)	58 (22%)	
Grade				
K	5 (2.7%)	2 (2.9%)	7 (2.7%)	
1	6 (3.2%)	0 (0%)	6 (2.3%)	
2	7 (3.7%)	5 (7.4%)	12 (4.7%)	
3	27 (14.4%)	3 (4.4%)	30 (11.7%)	
4	27 (14.4%)	3 (4.4%)	30 (11.7%)	
5	14 (7.4%)	12 (17.6%)	26 (10.2%)	
6	10 (5.3%)	4 (5.9%)	14 (5.5%)	
7	27 (14.4%)	8 (11.8%)	35 (13.7%)	
8	24 (12.8%)	13 (19.1%)	37 (14.5%)	
9	19 (10.1%)	8 (11.8%)	27 (10.6%)	
10	11 (5.9%)	7 (10.3%)	18 (7.0%)	
11	8 (4.3%)	2 (2.9%)	10 (3.9%)	
12	3 (1.6%)	0 (0%)	3 (1.2%)	

Note. SD = standard deviation; ED = emotionally disturbed; LD = learning disabled; OHI = other health impaired

after the threat. Principals provided ratings on 94% of cases, omitting cases involving students who had moved, transferred, or for some other reason left school. Principals also provided ratings (improved, same, or worse) of the students' relationship with their victims following the threat in 67% of cases.

Procedure

All schools received approximately six hours of training on the threat assessment guidelines (Cornell, Sheras, Kaplan, Levy-Elkon, et al., 2004; Cornell, Sheras, Kaplan, McConville, et al., 2004). A research assistant assigned to each school provided consultation on the guidelines throughout the school year. School principals reported cases by completing an electronic form at a secure Web

site maintained by the researchers. This form served the dual purpose of providing schools with printed documentation of their response to a student threat and informing researchers of a new case so they could follow up with the principal. The Web site form collected demographic information (i.e., age, gender, grade, race) on the student who made the threat and the intended threat victim and provided space for a description of the threat incident and the classification of the threat as transient or substantive. The form also presented a checklist of actions taken in response to the threat (e.g., suspending the student, contacting parents).

For the core sample, the research assistant conducted two follow-up interviews with the principals—one at the end of the school year and another the following fall. The average follow-up period from the date of the threat incident to the interview with the principal at the end of the school year was 148 days (range 3 to 282 days). The second follow-up interview occurred an average of 424 days after the threat incident. In the follow-up interviews, researchers asked the school principals to describe their response to the threat incident, whether the student carried out the threat, and whether the student's relationship with the threat recipient was improved, about the same, or worse than prior to the threat. They were asked to rate the student's overall behavior at school after the incident as improved, about the same, or worse than prior to the threat.

Results

As shown in Table 1, preliminary analyses found no significant differences between the core and supplemental samples in gender, race, special education status, special education classification, and school level (elementary, middle, and high). Table 1 also contains demographic information for the core, supplemental, and full samples. For the full sample, males committed 78% of threats versus 22% by females. Caucasian (58%) and African American (40%) students committed nearly all threats, with only 2% committed by Hispanic students and 1% by students of other ethnic backgrounds. Grade placement of students committing threats ranged from kindergarten to twelfth grade, with 44% occurring in elementary school, 34% in middle school, and 23% in high school.

Students in general education programs made 53% of threats versus 47% by students in special education. Of those students receiving special education services who committed threats, one-half were classified as ED and one-fourth as LD, with the remaining students having OHI (16%) or other (8%) classifications. Those students with other classifications included six with mental retardation, two receiving solely speech and language services, one with autism, and one with developmental delay.

Threat Rates of Students in General and Special Education Programs

The first question investigated whether students in special education exhibited higher threat rates than general education students. These analyses were conducted on the core sample because it represented all of the threats reported to the participating schools for one school year and because data were available for the size of special education population in these schools. Students in special education committed 49.5% of threats versus 50.5% by students in general education.

Students receiving special education services did not make threats at similar rates. Students with an ED classification were most likely to make threats relative to other students in special education programs. Specifically, although students with an ED classification made up only 10% of the special education population in these schools, they accounted for 50% of the threats made by the special education population. In contrast, students with an LD classification made up 37% of the special education population, yet they only accounted for 23% of the threats made by students receiving special education services.

Students with OHI classifications made up 14% of the special education population and accounted for a similar percentage (17%) of the threats made by students in special education. Students with classifications other than ED, LD, and OHI committed disproportionately fewer threats than would be expected; they constituted 39% of all students receiving special education services, but committed only 11% of the threats made by students in special education.

Comparisons with full school enrollment of the four special education classification groups also revealed disproportionate percentages, particularly for students receiving ED services. Students with an ED classification constituted

only 2% of the student enrollment but made one-fourth (46 of 188) of the threats in the core sample. The percentage of students receiving LD services that made threats (21 of 188, 11%) was closer to their proportion within the student population (6%). Students classified as OHI made 9% (16 of 188) of threats and comprised 2% of the student enrollment. The number of students receiving services for other disabling conditions who made threats (10 of 188, 7%) was consistent with the proportion of these students in the core sample (5%).

Of the 188 reported threats, school officials judged 70% to be transient and 30% substantive. Table 2 shows the threat rate for general and special education students, as well as for ED, LD, and OHI classifications, in threats per 1,000 students. Too few students with other classifications were available to enable calculation of a threat rate. We compared threat rates for students in special education using chi-square and *z*-test formulas from Glass and Hopkins (1996). Students in special education exhibited a significantly higher total threat rate than general education peers, z (1, n = 188) = 4.33, $p < .0001$. The transient threat rate for students in special education also differed significantly from general education students, z (1, n = 188) = 2.33, $p < .05$, as did the substantive threat rate, z (1, n = 188) = 6.00, $p < .0001$.

There were no statistical differences in threat content between students in general and special education, X^2 (5, n = 169) = 2.81, $p > .70$. Overall, the most frequent threat was a threat to hit (41%), followed by an unspecified, vague threat (15%, e.g., "I'm going to hurt you") and a threat to kill (15%).

Students receiving ED services exhibited significantly higher total threat rates than students receiving LD or OHI services, X^2 (2, n = 83) = 17.30, $p < .001$. Students in ED programs exhibited disproportionately higher rates of both transient, X^2 (2, n = 49) = 8.79, $p < .05$, and substantive, X^2 (2, n = 33) = 8.29, $p < .05$, threats. The variances accounted for in total, transient, and substantive threats were 32%, 30%, and 35% respectively. In follow-up analyses, no significant differences existed between students receiving LD and OHI services for total, transient, or substantive threat rates.

In follow-up to the threat rate differences between students in general and special education, we conducted a hierarchical logistic regression analysis to examine whether special education status improved the prediction of principal threat ratings beyond demographics and threat content (see Table 3). At Step 1 we entered student age, gender, race, and threat content, which accounted for 19% of the variance in principal ratings. Age and gender were both statistically significant predictors in this model. At Step 2, special education

TABLE 2
Threat Rates

	Education status				*Classification*				
	General education	*Special education*	*Z*	*Cohen's D*	*ED*	*LD*	*OHI*	X^2	*Cramer's phi*
Total enrollment	13,612	2,788			271	1,028	399		
Total threats	95	93	4.33**	.31	46	21	16	17.30**	.32
Rate per 1,000 students	7/1,000	33/1,000			170/1,000	20/1,000	40/1,000		
Transient threats	76	56	2.33*	.18	26	12	11	8.79*	.30
Rate per 1,000 students	6/1,000	20/1,000			96/1,000	12/1,000	28/1,000		
Substantive threats	19	37	6.00**	.38	20	9	5	8.29*	.35
Rate per 1,000 students	1/1,000	13/1,000			74/1,000	9/1,000	13/1,000		

Notes: School enrollment is based on the total number of students in the two school divisions (35 schools) that participated in the field-test project. X^2 = chi square; SD = standard deviation; ED = emotionally disturbed; LD = learning disabled; OHI = other health impaired

* $p < .05$ ** $p < .00$

status accounted for an additional 4% of the variance.

Disciplinary Infractions

The next question considered whether students in special education who made threats committed more disciplinary infractions throughout the school year than students in general education. These analyses were limited to the core sample because disciplinary data were not available for the supplemental sample.

A multivariate analysis of variance (MANOVA) comparing students in general and special education on the four disciplinary categories was statistically significant, f (3) = 5.59, $p < .001$, $Eta^2 = .11$. As shown in Table 4, univariate analyses showed more disciplinary infractions by special education students for three out of four discipline categories. Students in special education committed an average of .87 infractions (SD = 1.37) for violence/weapons offenses compared with .37 infractions (SD = .73) for general education students, f (1) = 9.70, $p < .01$, $eta^2 = .05$. The special education group also committed more disorderly conduct violations (M = 6.04, SD = 6.64) than the general education group (M = 2.95, SD = 4.28), f (1) = 14.22, $p < .001$, $eta^2 = .07$. Likewise, the special education cohort incurred more bullying infractions (M = 1.10, SD = 1.09) than general education peers (M = .82, SD = .75), f (1) = 4.20, $p < .05$, $eta^2 = .02$. There were no statistically significant differences between the two groups in other disciplinary violations.

A follow-up multivariate analysis of covariance (MANCOVA) tested differences between general and special education students on disciplinary infractions for the 2001–2002 school year using age, threat type, gender, and race as covariates. As shown in Table 5, special education students exhibited significantly higher violent and disorderly conduct infractions. General and special education students no longer differed in bullying infractions.

The next analyses considered whether schools administered more severe disciplinary consequences to students in special education than students in general education within the full sample. No statistical differences existed in school use of suspension between the core and supplemental samples. School expulsions were not analyzed because there were only three cases. Students receiving special education services were about as likely to be suspended from school for making a threat (36%) as students in general education (31%). For those students who received a suspension, we conducted a two-step hierarchical regression analysis to determine whether special education status would predict length of suspension beyond age, gender, race, and seriousness of threat (transient or substantive). As shown in Table 6, age and principal ratings of threat severity were statistically significant predictors of length of suspension at Step 1. Mean length of suspension for substantive threats was 4.7 days

TABLE 3
Hierarchical Logistic Regression Analysis for Principal Threat Ratings

	B	*SE*	*W*	*OR*	*CI(95%)*
Step 1					
Age	0.30	0.06	24.13	1.35***	1.20–1.51
Gender	–1.03	0.41	6.38	0.36*	0.16–0.80
Race	0.02	0.28	0.01	1.40	0.56–1.70
Threat content	0.00	0.10	0.00	1.00	0.83–1.21
Step 2					
Age	0.32	0.07	24.01	1.37***	1.21–1.56
Gender	–1.02	0.41	6.11	0.36*	0.16–0.81
Race	–0.11	0.29	0.14	0.90	0.51–1.58
Threat content	–0.01	0.10	0.00	0.99	0.81–1.21
Special education status	0.94	0.33	8.37	2.57**	1.36–4.87

Notes: W = Wald statistic; B = unstandardized beta; SE = standard error; OR = odds ratio; CI = confidence interval.

* p < .05. ** p < .01 *** p < .001

(SD = 3.35) versus 2.5 days (SD = 2.45) for transient threats. However, special education status did not significantly contribute to the prediction of number of days suspended.

Postthreat Behavior

The next analysis compared behavioral changes of threat perpetrators after the threat incident. School officials were more likely to rate students in general education (53%) than in special education (33%) as exhibiting improved behavior, and more likely to rate special education (28%) than general education (8%) students as displaying worse behavior following the threat, X^2 (2, n = 188) = 13.6, $p < .001$.

We then conducted a two-step hierarchical regression analysis to determine whether special education status was a significant predictor of postthreat behavior beyond student age and threat severity. At Step 1 we entered age and threat severity, which together significantly predicted principal ratings of postthreat behavior, F (2) = 3.87, $p < .05$, r^2 = .04. At Step 2, special education status produced a statistically significant change, F (1) = 12.40, r^2 = .06.

Another important question related to postthreat behavior concerns whether any of the threats were actually carried out. For the core sample, we conducted interviews with school principals during the final weeks of the school year and during the following fall. According to the school principals, none of the 188 threats of violence were carried out (see Cornell, Sheras, Kaplan, McConville, et al., 2004 for further information).

TABLE 4
Comparison of Discipline Infractions Between Students in General and Special Education

	General education M (SD)	*Special education M (SD)*	*F*	*eta²*
Disciplinary infraction				
Violence/weapons	.37 (.73)	.87 (1.37)	9.70**	.05
Disorderly conduct	2.95 (4.28)	6.04 (6.64)	14.22***	.07
Bullying	.82 (.75)	1.10 (1.09)	4.20*	.02
Other	1.76 (3.62)	2.08 (3.55)	.35	.00

Notes: M = mean; SD = standard deviation.

* p < .05 ** p < .01 *** p < .001

TABLE 5
Comparison of Discipline Infractions Between Students in General and Special Education Controlling for Age, Gender, Race, and Threat Type

	Education status				*Age*		*Threat Type*		*Race*		*Gender*	
	General education M (SD)	*Special education M (SD)*	*F*	*eta²*	*F*	*eta²*	*F*	*eta²*	*F*	*eta²*	*F*	*eta²*
Disciplinary infraction												
Violence/ weapons	.37 (.73)	.87 (1.37)	6.31*	.03	.29	.00	7.47**	.04	2.21	.01	3.08	.02
Disorderly conduct	2.95 (4.28)	6.04 (6.64)	15.62***	.08	26.38***	.13	.39	.00	15.05***	.08	1.45	.01
Bullying	.82 (.75)	1.10 (1.09)	1.62	.01	.01	.00	5.72*	.03	.72	.00	1.18	.01
Other	1.76 (3.62)	2.08 (3.55)	.03	.00	37.43***	.18	.33	.00	2.90	.02	.16	.00

Notes: M = mean; SD = standard deviation.

* p < .05 ** p < .01 *** p < .001

TABLE 6
Hierarchical Regression Analysis for Comparison of School Use of Suspension for Threats Made by Students in General Versus Special Education

	B	*SE*	β	*t*
Step 1				
Age	.34	.12	.32	2.74**
Gender	–1.08	.78	–.16	–1.40
Race	.85	.61	.15	1.40
Threat type	1.72	.68	.28	2.52*
Step 2				
Age	.34	.13	.32	2.73**
Gender	–1.10	.79	–.16	–1.40
Race	.83	.62	.15	1.33
Threat type	1.70	.69	.28	2.45*
Special education status	.14	.68	.02	.21

Notes: $R^2 = .23$ for Step 1; $\Delta R^2 = .23$ for Step 2 (ns); B = unstandardized beta; SE = standard error; b = standardized beta.

* $p < .05$ ** $p < .01$

Discussion

Threats of violence appear to be more prevalent among students in special education than general education. Students in special education made nearly half of all threats reported to school principals, even though students in special education represented only 17% of school enrollment. It should be noted that these were threats that came to the attention of school authorities and do not represent all threats that might have occurred. Although no previous research has compared students in special and general education on threats of violence, our findings are consistent with those of previous reports that find elevated rates of disciplinary infractions among students in special education (Skiba et al., 1997; Wright & Dusek, 1998). These results support further attention to the issue of threats of violence by students who receive special education services.

Students receiving ED services made more threats than any other group. The high rate of threatening behavior by these students is not surprising in light of the criteria used to identify a student as eligible for services under this category. The federal definition of an emotional disturbance recognized by IDEA involves a condition that is present over a long period of time, adversely affects academic performance, and involves one of the following:

- An inability to learn that cannot be explained by intellectual, sensory, or health factors.
- An inability to build or maintain satisfactory relationships with peers and teachers.
- Inappropriate types of behavior or feelings under normal circumstances.
- A general pervasive mood of unhappiness or depression.
- A tendency to develop physical symptoms or fears associated with personal or school problems (Hallahan & Kauffman, 2000, p. 250).

Students receiving services for an ED classification likely experience relationship difficulties and interpersonal conflicts, and they may use inappropriate strategies for dealing with conflicts such as threatening others. As a result, IEP teams could interpret a threat of violence as a symptom of the child's emotional disturbance.

However, schools must balance the rights of a student classified as ED with school safety. An IEP team has additional options beyond standard disciplinary techniques if a threat is determined to be a manifestation of a student's disability. A school can place a student with a disability in an interim alternative educational setting (IAES) for up to 45 days if the student possesses weapons or drugs or if "substantial evidence" exists that the student is a danger to self or others (Skiba, 2002). Schools may place the student in an IAES without parental consent in response to weapons or drug

violations. However, the school must obtain parental consent for an IAES placement for dangerousness, initiate an expedited due process hearing, and petition a hearing officer (Skiba, 2002). Parents also have the right to appeal any decision that constitutes a change of placement for students with disabilities, although the change in placement can proceed during the appeals process. Furthermore, the school may procure a court injunction to remove a student who is deemed dangerous and whose parents refuse to comply with the removal process, regardless of IDEA protection (see Skiba, 2002, for review).

The high rate of reported threats by students with ED classifications could be a result of their comparatively high rate of disciplinary violations. Students may be more concerned about a threat from a student with an ED classification than a student in general education without a similar history of infractions or peer conflict. Threat recipients or witnesses might perceive a student with an ED classification as more likely to carry out a threat and therefore might be more likely to report the threat to school authorities. Similarly, teachers may feel less able to manage a threat from a student with a history of disciplinary problems.

Students in special and general education exhibited no significant differences in what they threatened to do. This finding is important in light of the significantly higher rates of substantive threats for students in special education. The threat assessment guidelines direct school authorities to place more weight on the context and meaning of the threat than the content of the threat (Cornell & Sheras, in press). For example, threats to kill or shoot someone were frequently judged to be transient threats (Cornell, Sheras, Kaplan, McConville et al., 2004), despite the extreme content of the threat, if it was clear from the context that the student did not mean to carry out the threat.

The guidelines indicate that if the context or meaning of the threat is not clear, a threat should be classified as substantive. Cornell, Sheras, Kaplan, McConville et al. (2004) found that 30% of the 188 threats collected during the 2001–2002 school year were substantive and required more extensive intervention and follow-up. The higher rate of substantive threats by students in special education suggests that school authorities took these threats more seriously. Perhaps students receiving special education services had a more extensive history of violent behavior that increased the likelihood of a principal judging their threats to be substantive. For a more detailed discussion on how schools responded to both transient and substantive threats, please see Cornell, Sheras, Kaplan, McConville et al. (2004).

Students in special education who made threats committed more disciplinary infractions over the course of the 2001–2002 school year than peers in general education. Differences between the two groups also existed for infractions involving violence and weapons, disorderly conduct, and bullying. These results are again consistent with the Skiba et al. (1997) study involving office referrals. However, future research could compare disciplinary infractions between students in special education who do and do not make threats to assess whether the threat group represents a more challenging cohort within the student population.

In light of previous studies, it was surprising that students receiving special education services were not more likely to incur an external suspension than students in general education, or that the lengths of suspensions did not differ between groups. Several studies have identified a disproportionate number of students in special education receiving suspensions (Cooley, 1995; Leone, Mayer, Malmgren, & Meisel, 2000) and other harsh consequences such as corporal punishment (McFadden et al., 1992), even for relatively similar infractions such as endangering others and weapons violations (Rose, 1988). Principals in our study did not appear to apply disproportionately harsh consequences to students in special education for behavior comparable to that of general education students. It is possible that with the threat assessment guidelines, the principals were able to avoid the disproportionate disciplinary consequences found in other studies.

Study Limitations

This study was limited to a sample of schools that were implementing a new procedure for managing student threats of violence. There was no comparison group of schools using a different procedure, so it is not possible to conclude that the outcomes observed in this study were attributable to the use of threat assessment guidelines. The original study was a demonstration project to field-test threat assessment guidelines and show that this approach was a viable procedure

and therefore should be followed up with a controlled study (Cornell, Sheras, Kaplan, McConville et al., 2004). Because the schools were participating in the field-test project, it was possible to gather data that otherwise would not be available on threats of violence by students in special education.

Any study of student threats is limited by the nature of threat reporting. This study only examined threats that were reported to school authorities, and undoubtedly there are student threats that never come to the attention of school personnel. Cornell and Loper (1996) reported results from a survey of 10,909 students (grades 7, 9, and 11) in which more than one-fourth of students replied "yes" to the statement "Someone threatened to hurt you at school in the past 30 days." Singer and Flannery (2000) found that more than one-quarter of elementary school students and more than one-third of high school students reported threatening someone within the past year. It would be useful in future studies to study the incidence of student threats and the distinguishing characteristics of threats that are reported to school authorities. It would also be useful to gather more information on teacher and student perceptions of threats and how they judge the seriousness of a threat.

Conclusion

Can a threat assessment approach reduce the incidence of exclusionary discipline practices and disproportionately harsh discipline among students receiving special education services? This study cannot provide a conclusive answer to this question, but the results suggest that threat assessment is worthy of further study. It is possible that structured guidelines that emphasize the context and meaning of a threat over the content of the threat may be helpful to school authorities in responding to threats by students in special education.

It may be particularly useful to compare schools employing threat assessment with schools following a zero-tolerance approach. Skiba and Peterson (2000) cautioned that a zero-tolerance environment in schools would clash with IDEA principles and provisions. In particular, IDEA emphasizes positive behavioral interventions for disruptive behavior and increased instructional inclusion of special education students, whereas a zero-tolerance policy takes the opposite approach. Skiba and Peterson argued that "without general reform of school discipline practice, increased instructional inclusion for students with emotional and behavioral problems may lead to increased exclusion when those students engage in disruptive behavior in general education settings" (p. 340).

NOTES

The authors, with the Programs in Clinical and School Psychology, Curry School of Education, University of Virginia, thank Amherst County, Albemarle County, Appomattox County, and Charlottesville City schools for their participation in this study and colleagues on the Virginia Youth Violence Project for their assistance throughout this project. This study was supported by a grant from the Jessie Ball DuPont fund.

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Student Threat Assessment in Memphis City Schools: A Descriptive Report

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ABSTRACT: Threat assessment has been widely recommended as a violence prevention approach for schools, but there are few reports of its implementation. Memphis City Schools adapted the Virginia threat assessment guidelines (Cornell & Sheras, 2006) for use by a centralized team serving 194 schools and a student population of 118,000. This article describes 209 student threats referred for assessment during a single school year and the resulting educational placements and disciplinary consequences. There were no reports of students carrying out any of the violent threats. These results support further examination of student threat assessment as a promising approach to dealing with student threats.

■ Since the 1999 shootings at Columbine High School, school administrators have been under pressure to assure the public that schools are safe and secure (Cornell, 2006). The shootings in 2005 at Red Lake High School in Minnesota, in 2006 at the Amish school in Pennsylvania, and in 2007 at Virginia Tech received worldwide attention and have kept the issue of school safety in the foreground of national concerns. The purpose of this study is to report on the implementation of a student threat assessment program designed to prevent acts of violence in Memphis city schools.

Both the FBI (O'Toole, 2000) and the Secret Service (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) studies remarked on the diverse backgrounds and circumstances of students who engaged in acts of targeted violence but identified some general characteristics seen in many, but not all, of the student perpetrators. Many of the students were victims of bullying who had become angry and depressed, had family relationship problems, and were negatively influenced by peers. More than half displayed a preoccupation with violence through movies or video games. Unfortunately, both law enforcement agencies concluded that, because these characteristics can be found in so many students, it is not possible to develop a profile or checklist that could be used to pinpoint the small number of truly violent students among them. Any checklist of warning signs would falsely identify many students who were not dangerous.

Nevertheless, the FBI and Secret Service emphasized that almost all of these students communicated their intentions to attack through threats and warnings. In most cases, the threats were not communicated directly to the intended victims but to third parties such as their peers. Had these threats been reported to authorities and investigated, the shootings might have been prevented; the FBI identified a series of potential school shootings that were prevented because students reported a threat to authorities that was investigated and determined to be serious (O'Toole, 2000). Based on these observations, both the FBI and the Secret Service, in collaboration with the Department of Education, recommended that schools adopt a threat assessment approach to prevent targeted acts of violence (Fein et al., 2002; O'Toole, 2000).

What is threat assessment? Threat assessment was developed by the Secret Service to deal with persons who threaten to attack public officials, and it has evolved into a standard law enforcement approach to analyze a variety of dangerous situations, such as threats of workplace violence. Threat assessment is a process of evaluating a threat and the circumstances surrounding the threat to uncover any facts or evidence that indicate the threat is likely to be carried out. Student threat

assessment can be distinguished from profiling in part because the investigation is triggered by the student's own threatening behavior rather than some broader combination of student characteristics.

Threat assessment is ultimately concerned with whether a student poses a threat, not whether he or she has made a threat (O'Toole, 2000; Randazzo et al., 2006). Any student can make a threat, but relatively few will engage in the planning and preparation necessary to carry out the threat. Threat assessment is concerned with determining whether a student has the intent and means to carry out the threat. Moreover, threat assessment includes efforts to prevent the threat from being carried out. Prevention efforts range from immediate security measures, such as notifying law enforcement and warning potential victims, to the development of an intervention plan designed to resolve the conflict or problem that precipitated the threat.

Although both the FBI and Secret Service reports (Fein et al., 2002; O'Toole, 2000) made a compelling case for student threat assessment, schools had no experience with this approach, and there were many questions concerning the practical procedures that should be followed and how the process would work. In response to these questions, researchers at the University of Virginia developed a set of guidelines for school administrators to use in responding to a reported student threat of violence. Threat assessment teams are trained in a 6-hour workshop that prepares them to use a 145-page threat assessment manual (Cornell & Sheras, 2006).

The guidelines include a decision tree that consists of seven steps. At Step 1, the team leader (typically a school administrator) investigates a reported threat by interviewing the student who made the threat and any witnesses to the threat. The guidelines manual includes a basic set of interview questions that consider both the actual threat behavior and questions about the meaning and intent of the threat from each observer's perspective.

At Step 2, the team leader decides whether the threat is transient or substantive. A threat is considered transient if it is not a serious threat and can be easily resolved. Examples of transient threats are jokes or statements made in anger that are expressions of feeling or figures of speech rather than expressions of a genuine intent to harm someone. Any threat that cannot be clearly identified as transient is treated as a substantive threat.

If a threat is transient, it is resolved at Step 3 through a brief counseling process intended to resolve the conflict or clarify the misunderstanding that might have stimulated the threat. The student might be reprimanded and could receive a disciplinary consequence appropriate to the seriousness of the behavior (e.g., creating a disturbance or being disrespectful to others). If this process is deemed successful by the team, the incident is resolved, and no further action is needed.

The first three steps are essentially a triage process designed to address simpler cases without an extended process. If a threat cannot be resolved as transient or appears to be substantive, the process becomes more complex. Substantive threats always require protective action to prevent the threat from being carried out. At Step 4, the threat is determined to be serious or very serious. A threat to hit, assault, or beat up someone is serious, whereas a threat to kill, rape, use a weapon, or severely injure someone is considered very serious. Serious threats are addressed at Step 5, whereas very serious threats are addressed at Step 6.

At Step 5, serious substantive threats require protective action to prevent violence, including notification of potential victims and other actions to address the conflict or problem that generated the threat. The response to serious threats is completed at this step.

Steps 6 and 7 are reserved for very serious substantive threats. At Step 6, the team takes immediate protective action, including contact with law enforcement followed by a comprehensive safety evaluation. The student may be suspended from school pending completion of a safety evaluation, which includes a mental health assessment following a prescribed protocol. At Step 7, the threat assessment team uses the results of the safety evaluation to develop and implement an action plan that is designed both to protect potential victims and to meet the student's educational needs. The plan includes provision for monitoring the student and revising the plan as needed.

The Virginia threat assessment guidelines were field tested in 35 public schools, encompassing an enrollment of more than 16,000 students in Grades K through 12 (Cornell et al., 2004). School-based teams evaluated 188 student threats that involved threats to hit, stab, shoot, or harm someone in some other

way. Most of the threats (70%) were resolved as transient threats such as comments made in jest or in a fleeting moment of anger. The remaining 30% were substantive threats that required more extensive assessment and protective action to prevent the threat from being carried out. The threat assessment teams placed special emphasis on understanding the context and meaning of the threat and developing a plan to address the underlying conflict or problem that stimulated the student to resort to threatening behavior. Use of this problem-solving approach meant that relatively few students received long-term suspensions or expulsions from school. Only three students were expelled from school, although half of the students (94) received short-term suspensions (typically 1–3 days). Notably, follow-up interviews with the school principals found no cases in which the threats were carried out.

Adaptation of the Threat Assessment Guidelines to Memphis City Schools

The present study examines the implementation of the Virginia guidelines for student threat assessment in Memphis City Schools (MCS). This was an uncontrolled feasibility study designed to determine whether the guidelines could be adapted and applied in a challenging setting such as Memphis. With 118,000 students, MCS is Tennessee's largest school district and the 21st largest in the nation. At the time of the study, there were 194 schools (115 elementary schools, 29 middle/junior schools, 2 KK-8 schools, 34 high schools, 6 career and technology schools, 6 alternative schools, and 2 special category) within the city's 280 square miles. The student body is predominantly African American (87%), followed by White (8.5%), Hispanic (4.5%), and other (1%) groups.

The MCS serves a largely disadvantaged population. Approximately 75% of students are eligible for free or reduced lunch, and 29% of students have been retained at least one grade. These students reside in a community with a high crime rate. In 2005, the city's murder rate (20.2 per 100,000) was nearly three times the national average (6.9) and 13th highest in the nation (Morgan Quitno Press, 2006).

During the 2004–2005 school year, the school district recorded 225,405 disciplinary office referrals for student misbehavior. Six percent (13,659) of these referrals resulted in suspensions of 4 or more days, which were termed *board suspensions*. All students whose infraction resulted in a board suspension were referred to the Memphis Pupil Services Center (PSC), which serves as the disciplinary hearing authority for the school division to ensure due process.

Prior to the 2004–2005 school year, the mental health team located at the PSC decided to adopt a threat assessment approach to evaluating students who appeared to pose a risk of violence. The mental health staff identified the Virginia guidelines as a promising model because it included a detailed set of procedures based on recommendations from the FBI (O'Toole, 2000) and Secret Service (Fein et al., 2002) studies. The mental health staff obtained training from the principal author (Cornell) of the Virginia guidelines and established administrative procedures for conducting threat assessments in their setting.

Because Memphis is such a large system and was not ready to train threat assessment teams in every school, the threat assessment program was implemented on a trial basis through a single centralized facility. One consequence of this decision is that threat assessments were conducted only on students whose behavior was judged serious enough by the school principal to have merited a suspension of 4 or more days. Nevertheless, the Memphis procedures were designed to follow as closely as possible the Virginia principles by using the same decision tree model and the same criteria for distinguishing transient and substantive threats (Cornell et al., 2004).

Each case that was referred to the PSC for disciplinary violations was reviewed by a hearing officer who had the authority to uphold, modify, or overturn the principal's decision to suspend the student. As part of the hearing process, the student was seen for evaluation by the Threat Assessment Team (TAT). The TAT was charged with screening student threats and conducting mental health assessments in those cases in which there was concern about a continued threat to others. (A case example is included in the appendix.)

The TAT was composed of two school psychologists, two school social workers, and a supervising psychologist who served as clinical staff of the MCS Mental Health Center within the Division of Exceptional Children and Health Services. This team makeup differs from the original recommendations of the guidelines (Cornell & Sheras, 2006), which

suggest that each school-based team should include an administrator (principal or assistant principal) and a law enforcement representative (such as a school resource officer) in addition to one or more mental health professionals (such as school psychologists, counselors, or social workers).

The purpose of this article is to demonstrate the viability of a threat assessment approach using the Virginia guidelines and based on a sample of 209 cases. Although the guidelines had previously been field tested in 35 public schools (Cornell et al., 2004), the application of threat assessment in Memphis public schools posed new challenges because of the size and urban nature of the school system. The present study describes the kinds of threat cases referred for assessment and the grade level, special education status, disciplinary history, and school attendance of the students who made the threats. Follow-up examination of the threat assessment process includes the mental health treatment recommendations and subsequent school placement of these students and the available information on whether the threats were carried out.

Method

Participants

The participants were drawn from the pool of 13,659 students in the MCS who received a board suspension (4 days or more) from their principal and as a result were sent for a disciplinary hearing at the PSC during the 2004–2005 school year.[1] The hearing officer made 209 referrals to the TAT because the student had communicated a threat to commit a violent act. The 209 referrals involved 204 students (four boys and one girl were referred twice), ranging in age from 5 to 18 years old and including 159 boys (78%) and 45 girls (22%). One hundred ninety-six (94%) of the referred students were African American, 10 (5%) were White, and 3 (1%) were Hispanic. The students were referred from 103 different schools: 106 (52%) in grades pre-K through 6, 77 (38%) in Grades 7 to 9, and 21 (10%) in Grades 10 to 12.

[1] There were 45 additional cases evaluated by the TAT involving students who had not made a threat of violence but who had a history of repeated aggressive behavior that was cause for concern.

Measures

Threats were classified according to the *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006) as transient or substantive. According to this manual, a member of the TAT interviews the student who made the threat using a series of open-ended, nonleading questions to assess the student's intent. The interview can be modified as appropriate to the circumstances but includes the following basic questions as a guide:

1. Do you know why I wanted to talk with you? Tell me.
2. What happened today when you were [place of incident]?
3. What exactly did you say? And what exactly did you do?
4. What did you mean when you said or did that?
5. How do you think [person who was threatened] feels about what you said or did? (See if the student believes it frightened or intimidated the person who was threatened.)
6. What was the reason you said or did that? (Find out if there is a prior conflict or history to this threat?)
7. What are you going to do now that you have made this threat? (Ask if the student intends to carry out the threat.) (Cornell & Sheras, 2006, p. 111)

Transient threats are defined as behaviors that do not express a sustained intention to harm someone. Transient threats may be figures of speech, attempts at humor, or expressions of anger or frustration. If the student is angry or frustrated, the threat is transient if the student calms down and retracts the threat. The key indication that a threat is transient is that the student is able to explain the reason for his or her statement and retract the threat. Threats can be classified as transient only if the team member is confident that the threat has been resolved and the student has no ongoing intent to hurt someone. If the team member doubts the student's explanation or is uncertain whether the threat is transient, the threat is considered substantive.

Substantive threats are defined as threats that have substance (i.e., an ongoing intent to harm someone). Any threat that clearly conveys a serious intent to harm someone and that cannot be easily resolved as transient is

considered substantive. Substantive threats are distinguished from transient threats because they require protective action to prevent the threat from being carried out. Substantive threats may be identified by one or more presumptive indicators, derived from the FBI report (O'Toole, 2000):

- the threat includes plausible details, such as a specific victim, time, place, and method of assault;
- the threat has been repeated over time or communicated to multiple persons;
- the threat is reported as a plan or planning has taken place;
- the student has accomplices or has attempted to recruit accomplices;
- the student has invited an audience of peers to watch the threatened event;
- there is physical evidence of intent to carry out the threat, such as a weapon, bomb materials, map, written plan, or list of intended victims.

Although the presence of any one of these features may lead the team to presume the threat is substantive, none are absolute indicators, and all require additional investigation. Examples of transient and substantive threats and more detailed evaluation criteria are contained in the manual (Cornell & Sheras, 2006).

Procedure

The Memphis threat assessments began when a hearing officer made a referral to the PSC's TAT because a student had engaged in threatening behavior. A TAT member consulted with the hearing officer to clarify what the student was reported to have said or done. Typically, this consultation took place while the students and his or her parents/guardians were meeting with the hearing officer, so that the TAT member could conduct a brief interview with the student and his or her parents/guardians to obtain the student's account of what happened. Next, one of the TAT staff conducted an interview with the school administrator and/or other school personnel with pertinent knowledge of the student and reviewed the student's school records.

After collecting all of the above information, the TAT conducted a case conference to determine whether the threat was transient or substantive. If the threat was deemed to be transient (e.g., the student's threatening statement was made in a moment of anger and had since been resolved), the team concluded the assessment with recommendations for working with the student to avoid future problems. Recommendations could be directed to the school, the student, parents, or other professionals who were working with the student (e.g., mental health staff within MCS or in a community agency). The case then proceeded with the PSC disciplinary hearing for adjudication by the hearing officer.

When the TAT determined that a student's threat was substantive, the disciplinary hearing was postponed while a more complete assessment was conducted. The student and his or her parents were interviewed by a psychologist and a social worker at the PSC. After an initial meeting to obtain parental consent and advise them of the limits of confidentiality, the student and parents were interviewed separately. The interviews covered a standard list of topics derived from the literature on threat assessment and youth violence (Augimeri, Koegl, Webster, & Levene, 2001; Borum, Bartel, & Forth, 2000; Cornell & Sheras, 2006). In addition, the student and parents were asked detailed questions about the events leading to the disciplinary action.

The psychological evaluation of the student also included a mental status exam and an assessment of the student's social and emotional functioning. Depending on the student's age and clinical presentation, the psychologist administered a series of psychological instruments to the student, and the parents completed a behavioral inventory.

Within a few days, the team met with the student and parents to give them a summary of their findings and recommendations, including a written report. This meeting often occurred in conjunction with the disciplinary hearing, so that the hearing officer could consider the results of the threat assessment in making a decision about the suspension. The team made recommendations concerning the child's social support networks, peer affiliations, and mental health needs. Referrals to the MCS Mental Health Center and/or community agencies were commonly a part of the team's recommendations. The team also made recommendations to the school administrator that included instructions for implementing a safety plan intended to address specific risk factors within the school setting (e.g., addressing a problem with bullying or a peer conflict that precipitated the threat).

TABLE 1
Distribution of Threat Cases Across Grades

Grade Level	Total Students in the District		Threat Cases	
	n	Column %	*n*	Column %
Pre-k	1,463	<1	1	1
K	9,690	1	2	8
1	9,780	2	5	8
2	9,216	3	6	8
3	9,106	7	14	8
4	9,075	7	14	8
5	9,480	19	40	8
6	9,721	12	26	8
7	9,892	10	20	8
8	9,081	12	25	8
9	10,326	17	35	9
10	8,428	6	13	7
11	6,793	2	5	6
12	6,073	1	3	5
Total	118,124	100	209	100

Results

The 209 student threats of violence included 60 (29%) threats to hit or beat up someone, 48 (23%) threats to cut or stab, 32 (15%) threats to shoot, and 30 (14%) threats to kill. There were 17 (8%) vague threats (e.g., "I'm going to get you"), 14 (7%) sexual threats, and 8 (4%) other threats (such as to blow up or burn down the school). The students who made threats came from each grade level from preschool to 12th grade, although the frequency of threats increased through the elementary grades, peaked at Grade 5, and was maintained at a high rate until after the ninth grade (see *Table 1*).

The first set of analyses described the students who made threats of violence and compared them to the school district population. More than one-third of the referred students (38%) were receiving special education services, compared with 12% of the school system as a whole. The overall rate of students referred for threat assessment was 1.7 per 1,000 students, whereas among students receiving special education services, the rate was 5.6 per 1,000 students. A breakdown of special education service categories (see *Table 2*) indicates that the highest rate was among students receiving services for other health impairments: 12.8 cases per 1,000. The next highest rate was 10 per 1,000 among students receiving services as functionally delayed. This category is used in Tennessee to identify a group of students who can be distinguished from those in the categories of emotional disturbance, developmental delay, mental retardation, or other standard categories. Functional delay means "a continuing disability in intellectual functioning and achievement which significantly affects the ability to think and/or act in the general school program, but who is functioning socially at or near a level appropriate to his/her chronological age" (Tennessee Department of Education, 2003, p. 45). The eligibility standards required intellectual functioning at a level comparable to the category of mental retardation but with adaptive behavior above the level of mental retardation.

Nearly three-fourths (149; 71%) of the referred students had been academically retained one or more times, as compared with 29% of the district's students. Forty-four percent (92) of the students had repeated one grade, 22% (47) had two retentions, and 5% (10) had been retained three times. For the district, retention rates were one grade (23%), two grades (6%), and three grades (0.3%).

Threat assessment findings. Of the 209 threat cases, 102 (49%) were classified as transient by the TAT and 107 (51%) were

TABLE 2
Special Education Services for Students Who Made Threats of Violence

	School District Population		Threat Cases		
Special Education Category	***n***	**Column %**	***n***	**Column %**	**Rate per 1,000 Students**
Autism	199	1	—	—	—
Blind	24	<1	—	—	—
Deaf	4	<1	—	—	—
Deaf-blind	1	<1	—	—	—
Developmentally delayed	493	4	—	—	—
Emotional disturbance	230	2	11	5	4.8
Functionally delayed	679	5	7	3	10
Hearing impaired	206	2	—	—	—
Learning disability	4,733	34	28	14	5.9
Mental retardation	4,138	30	19	9	4.6
Multidisabled	223	2	—	—	—
Other health impairment	705	5	9	4	12.8
Physically impaired	57	<1	—	—	—
Speech and language	2,005	15	3	1	1.5
Traumatic brain injured	16	<1	—	—	—
Visually impaired	81	1	—	—	—
All special education	13,794	12	77	38	5.6
Not special education	104,330	88	127	62	1.2
Total	118,124	100	204	100	1.7

considered substantive. A breakdown of transient and substantive threats (see *Table 3*) showed a preponderance of transient threats in the lower grade levels up until Grade 5, at which point substantive threats began to outnumber transient threats.

The substantive threats were further classified as serious (30 cases, 14%) or very serious (77 cases, 37%) substantive threats. According to the published threat assessment guidelines (Cornell & Sheras, 2006), a mental health assessment of the student is usually conducted only in very serious substantive cases. However, because they wanted to take a more inclusive and cautious approach, the team elected to broaden the criteria for conducting a mental health assessment. They conducted mental health assessments in all substantive cases and in 20 of the transient cases in which the student appeared to have a history of escalating violence or serious emotional adjustment problems.

In each case, the team made recommendations to the schools, students, and parents related to violence prevention and safety. Most of these recommendations included specific advice on resolving an interpersonal conflict or dispute that was the basis for the threat. In addition, the team frequently recommended mental health services. A total of 37 students were referred for counseling or treatment with the MCS Mental Health Center, 15 students were referred for a psychiatric consult through the University of Tennessee Department of Child/Adolescent Psychiatry or a community mental health center, and 3 cases were reported to the Tennessee Department of Children's Services due to suspected abuse/neglect. There were 41 students who were referred for school-based services through the Student Support Team program, which is a regular education service designed to assist students with academic or behavioral problems that affect their success in school.

In 128 (61%) of the 209 cases, students returned to their previous school, and in the remaining 81 cases, the students had a change in school placement. These changes included placement in an alternative school (37 cases), transfer to a different regular school (14 cases), hospitalization or day treatment (8 cases), homebound instruction (3 cases), home

TABLE 3
Distribution of Threat Types Across Grades

Grade Level	Transient	Serious Substantive	Very Serious Substantive	Total Cases
Pre-k	1	0	0	1
K	2	0	0	2
1	5	0	0	5
2	4	1	1	6
3	9	2	3	14
4	9	2	4	15
5	17	4	17	38
6	13	5	10	28
7	8	5	7	20
8	11	5	9	25
9	15	5	14	34
10	4	1	8	13
11	2	0	3	5
12	2	0	1	3
Total	102	30	77	209

schooling (2 cases), and job corps placement (2 cases). Only 5 students were not recommended for placement during their expulsion period, and just 3 students were incarcerated. Four students withdrew from compulsory attendance, and 3 stopped attending school without withdrawing and could not be contacted.

Attendance and discipline data were available for 198 of the students. For the year, these 198 students averaged 17 days of unexcused absences. Only 41% (80) of the students attended the same school all year, whereas the remaining 59% (118) had attended two or more schools.

The students averaged 9.3 office referrals for disciplinary problems during the school year, not including the referral for the threat incident. This included an average of 6.4 referrals accumulated before the threat incident and 2.9 referrals from the time of the threat assessment until the end of the school year. A paired *t* test indicated a statistically significant decrease in discipline referrals, $t(197) = 6.6$, $p < .001$. One possible explanation for the higher number of discipline referrals prior to the threat assessment could be that the incidents occurred close to the end of the school year, so that there was less time for students to generate discipline referrals. To rule out this possibility, the date of each threat case was examined and the average referral date was determined. With a school year spanning 285 calendar days, the average threat incident date was at day 151, just past the midpoint for the school year.

Another possible explanation for the lower rate of postthreat discipline referrals is that it included students who did not return to school or continued in an alternative education setting with different disciplinary referral practices. There were also approximately 35 students who attended more than one school before the threat referral. Therefore, discipline referrals were examined for the subgroup of 80 cases in which the student attended the same school all year. There were an average of 6.3 discipline referrals prior to the threat assessment and 2.8 referrals after the assessment, $t(79) = 3.9$, $p < .001$.

A critical follow-up question was whether any of the students carried out their threats. The information available to address this question was based on follow-up reports from school principals and school discipline records, as well as information obtained directly from the students and parents who participated in the threat assessments. Across all sources of information, there was no report of any of the threats being carried out during the course of the school year. For the 110 cases involving a threat to kill, shoot, or stab someone, school personnel can be reasonably certain that the threats were not carried out, but in cases of

threats to hit or fight someone, it is conceivable that a threat could have been carried out without detection by school personnel or report from a victim or witness.

Discussion

This study documents the viability of a threat assessment approach in a large urban school system. A centralized threat assessment team serving MCS evaluated 209 cases of student threats of violence. Student threats were recorded at all grade levels and included a wide range of threats, including threats to kill, shoot, stab, or in some other way injure someone. The threat assessment included a review of school records, consultation with school authorities and, in the most serious cases, a mental health assessment of the student and accompanying parent interviews. The threat assessment team followed a decision tree model to determine the seriousness of the threat and to make recommendations for protective action, school placement, counseling, and mental health treatment.

The results of this study can be compared with the original field-test findings for the Virginia threat assessment guidelines reported by Cornell et al. (2004). Both studies reported successful implementation of the threat assessment approach and found that teams were able to distinguish transient from substantive threats using the same decision tree model. In the Virginia study, 70% of the threats were determined to be transient, and 30% were deemed substantive. In contrast, the present study found a nearly even split between transient (49%) and substantive (51%) cases. It is likely that the larger proportion of more serious, substantive cases in Memphis was due to the more selective sample of cases in Memphis. The Memphis cases were deemed serious enough by their school principal that the students were given a suspension of 4 or more days and therefore were sent to the school district's centralized pupil services center, where a hearing officer referred them for evaluation by the threat assessment team. In contrast, the Virginia cases were evaluated by site-based teams headed by the principal or assistant principal at each school, and all cases brought to administrative attention were included in the sample.

Notably, both studies reported that the vast majority of students were able to return to school or continue their education in an alternative setting. In the Virginia study of 188 cases, only three students were subject to long-term suspension (expulsion), and in Memphis, only five students received this outcome. Memphis had a higher number (66) of students placed in an alternative setting than the Virginia study (12 cases), which may reflect both the greater number of resources available in a large urban school system and the more serious nature of the cases seen for assessment in Memphis. Nevertheless, these are positive findings in light of concerns that American schools have widely adopted a zero-tolerance approach that has resulted in a substantial national increase in long-term suspensions or expulsions of students (Advancement Project & Civil Rights Project, 2000; American Psychological Association Zero Tolerance Task Force, 2006). These findings support the view that threat assessment can serve as a less punitive alternative to a zero-tolerance approach.

A disproportionate number of cases involved students who received special education services. Although only 12% of Memphis students received special education services, this population produced 38% of the threat cases. The rate of threats among students in the regular education population was 1.2 cases per 1,000 students, whereas the rate in the special education population was more than 4 times higher, 5.6 per 1,000. However, the rate was not consistent among the students receiving special education services. The highest rate was observed in the small number of students identified as other health impaired (OHI). A review of these cases indicated that they consisted primarily of students diagnosed with attention-deficit hyperactivity disorder.

A study by Kaplan and Cornell (2005) also examined the special education status of students who made threats of violence. (This study's sample of 256 threat cases included the 188 cases in the Cornell et al. [2004] study as well as additional cases collected from other Virginia schools that subsequently adopted the same threat assessment model.) Kaplan and Cornell (2005) found that 47% of threat cases involved students receiving special education services, slightly higher than the 38% in the current study. The Virginia schools did not use the category of functionally delayed but found that students receiving services for emotional disturbance were the most likely to make threats, followed by students with an attention-deficit disorder diagnosis receiving services under the OHI classification.

The high rate of threatening behavior among students receiving special education may not be news to experienced special educators, but it does indicate the need to address threat behavior in behavior support plans and individualized education plans. Such plans could specify the use of a threat assessment approach to distinguish serious threats that require protective action from threats that can be more easily resolved and do not pose a risk to the safety of others. It would be useful for future research to examine the rates of transient versus substantive threats among students receiving special education services in a more representative sample than was available for this study. Students who make even transient threats jeopardize their educational progress because of the potential for severe disciplinary consequences and long-term suspension, particularly in school systems relying on a zero-tolerance approach.

Threats of violence understandably raise concern about the risk of violent outcomes. The intense publicity given to school shootings has aroused considerable concern among educators and fear among the public that schools are not safe and that there is a growing risk of violence by students (Cornell, 2006). These perceptions stand in contrast to multiple studies that indicate that schools have experienced declining rates of violence over the past decade and are comparatively safe places with a low level of serious violent crime (Cornell, 2006; Dinkes, Forrest Cataldi, Kena, & Baum, 2006). In both Virginia and Memphis schools, the available follow-up information revealed no cases in which a student's threat was carried out. Although it is conceivable that some threats of a less serious nature, such as threats to hit or fight someone, were carried out without the knowledge of school authorities, they are reasonably certain that none of the more serious threats to kill, shoot, stab, or in some other way seriously injure the intended victim were carried out.

Threat assessment may be helpful in preventing a threat from being carried out, but it does not preclude further disciplinary problems. In the present study, students averaged 2.9 disciplinary referrals in the remainder of the year following their threat assessment. One positive sign is that the average number of disciplinary violations after the threat assessment (2.9) was about 55% lower than prior (6.4) to the assessment. This suggests some positive impact of the threat assessment on the student's behavior, but a controlled study is needed to confirm this possibility.

Overall, the present study produced encouraging results and supports the feasibility of a threat assessment approach, but more research is needed. The present study was limited to a single school district in a large urban area serving a challenging population. Research in a variety of communities and school systems is needed. It would also be useful to collect data on the reliability and consistency of staff in carrying out the threat assessment guidelines and to collect more detailed information on the students' response to the threat assessment process.

It would be informative to carry out a controlled study that compares groups of schools randomly chosen to use or not use a threat assessment approach. However, there are obvious practical limits to the kind of study that can be conducted on a violence prevention method such as threat assessment because in every case of a serious student threat, authorities are compelled to take some form of protective action. The outcomes under study must go beyond the prevention of violence to include additional benefits, including the student's continuation in school, academic achievement, and avoidance of further disciplinary problems.

Limitations in the Memphis adaptation of threat assessment. The Memphis schools adapted the threat assessment model for use by a centralized team serving the entire district. This decision was necessary for practical reasons because the school division already had a centralized program for serious discipline cases and was not prepared to train teams in every school. One advantage of a centralized team is that its members develop substantial experience and expertise in assessing threats. However, there are some limitations to a centralized approach that make school-based teams preferable (Cornell & Williams, 2006). In brief, school-based teams have greater knowledge of the school and of the individual students involved. They are able to respond more quickly to a threat situation and can muster resources to assist them in planning and carrying out a safety plan. School-based teams can more readily include a school resource officer or law enforcement officer who is assigned to the school and knows the students and the surrounding community.

Furthermore, site-based teams can remain involved in the case and make sure that safety plans are implemented and that prevention efforts are effective. Finally, a single centralized team might not be able to respond to all of the threats that occur in a large school district. It seems doubtful that there were only 209 threats in the Memphis school division because the Virginia study, using a site-based approach, identified 188 threats in a sample of just 35 schools. For these reasons, the Memphis staff suggested that the district study the feasibility of implementing site-based teams to handle the majority of cases and allow the central team to serve in a consultative role in the most serious or complex cases.

Conclusions

There is a dearth of information about violent threats made by students. This study examined 209 serious incidents that were resolved using a modified application of the Virginia guidelines. Although a controlled study is needed, these field-test findings indicate that threat assessment appears to be a promising approach to responding to student threats of violence.

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We thank the Threat Assessment Team (Ms. LaVern Brooks, Dr. Jennifer Geter, Dr. David Wilkins, and Ms. Janiece Williamson) of the Memphis City Schools Mental Health Center for their work on this project, as well as Dr. Patricia Toarmina and Dr. Randy Schnell of the Division of Exceptional Children and Health

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MANUSCRIPT

Initial Acceptance: 7/17/08
Final Acceptance: 11/1/08

APPENDIX

Case Example of a Typical Threat Assessment

Shawn was a 12-year-old sixth-grader suspended for bringing a pellet pistol onto school grounds and threatening other children. He was in juvenile detention for 2 days before being seen for evaluation. A member of the threat assessment team conducted an initial interview with Shawn and his custodial grandmother to obtain their account of what happened. This account was compared with information obtained from school officials and the juvenile authorities. The team then decided that the threat merited a complete assessment.

Shawn reported that some older students had been picking on him and other students since he started middle school a few months ago. They referred to him and his friends as "fresh meat" and called him their "food boy," meaning that he should get extra food for them in the cafeteria. They had pushed and shoved him on several occasions. In retaliation, Shawn brought an unloaded pellet gun to school, pointed it at his antagonists, and threatened to shoot them. Shawn explained that if he had not stood up to the bullies, everyone would call him a "sissy" and that the girls would have no interest in him.

Shawn said that he had no intention of hurting anyone and feels badly because, "I could have caused someone to have a heart attack." He also recognized that he could have provoked someone else to use a real gun. Shawn denied holding a grudge against any of the students involved but feels that he must try to avoid them in the future. He agreed that the school was justified in suspending him but felt that the other students deserved similar punishment.

Shawn participated in a mental health assessment that included clinical interviews and testing, interviews with his custodial grandparents and school personnel, and a review of all available records. During clinical interviews, Shawn displayed a full range of emotion appropriate to the situation. He seemed bright and articulate and displayed no indication of oppositional or defiant behavior. The assessment indicated a history of attention problems and treatment for attention-deficit hyperactivity disorder (ADHD) in the first grade that had been discontinued after Shawn's mother had died in a car accident and his grandmother assumed custody. Shawn had been in several fights during elementary school and admitted a history of shoplifting. He denied alcohol or drug use. Shawn acknowledged being quick to anger and feeling that other kids are "always messing" with him.

The threat assessment team concluded that Shawn regretted what he had done and was willing to work toward a resolution of the problem without resorting to violence. He was not expelled but received a brief suspension contingent on his good behavior and compliance with the safety plan that was developed to facilitate his return to school. The team had concerns about Shawn returning to his middle school because he had been the victim of bullying and might be the target or retaliation for his threatening behavior. He attended an alternative school for approximately 1 month before returning to middle school. During this time, the prevention coordinator at the middle school worked with the boys who had been involved in bullying. The team also provided Shawn's grandmother with information about ADHD and referred her to a community mental health agency where he could receive further evaluation and treatment. Shawn eventually returned to the middle school and completed the year without any serious problems at school.

This case illustrates the problem-solving approach to student threats that differs substantially from a zero-tolerance approach. In many school divisions, a student who brought a pellet gun to school would automatically be expelled regardless of the circumstances. The assumption underlying this approach is that strict discipline and severe punishment will send a

strong message to the offender and to other students that will deter future misbehavior and maintain a safe school environment. However, a comprehensive review of research on student expulsion found no evidence in support of a zero-tolerance approach and considerable evidence that long-term suspensions and expulsions can have a damaging effect on student achievement (American Psychological Association Zero Tolerance Task Force, 2006).

Reductions in Long-Term Suspensions Following Adoption of the Virginia Student Threat Assessment Guidelines

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NASSP Bulletin 2011 95: 175 originally published online 29 August 2011
DOI: 10.1177/0192636511415255

NASSP Bulletin
95(3) 175–194

DOI: 10.1177/0192636511415255
http://bul.sagepub.com
SAGE

Reductions in Long-Term Suspensions Following Adoption of the Virginia Student Threat Assessment Guidelines

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Abstract

This quasi-experimental study examined the adoption of the Virginia Student Threat Assessment Guidelines in 23 high schools. After training, school administrators and other staff members demonstrated substantial increases in knowledge of threat assessment principles and decreased commitment to zero tolerance approaches. Schools using the guidelines showed a 52% reduction in long-term suspensions and a 79% reduction in bullying infractions from the pretraining year to the posttraining year, in contrast to a control group of 26 schools not using the guidelines.

Keywords

threat assessment, school discipline, violence prevention, high school

The purpose of this quasi-experimental study was to examine the adoption of threat assessment guidelines in a large school division containing 23 high schools. Threat assessment is a violence prevention strategy recommended for all schools in studies of school shootings conducted by the Federal Bureau of Investigation (O'Toole, 2000) and the U.S. Secret Service and Department of Education (Fein et al., 2002; Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) and has been more recently recommended for institutions of higher education (U.S. Department of Health and Human Services, 2007). These authorities agreed that a threat assessment should be completed by a

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multidisciplinary team that follows a standardized approach to investigate threatening behavior and then, when a threat is determined to be serious, develops an appropriate prevention plan.

Threat assessment is a strategy for preventing violence through identification and evaluation of persons who pose a threat to harm others, followed by intervention designed to reduce the risk of violence. Threat assessment involves both assessment and intervention and might be described more accurately as a threat management approach to violence prevention (Cornell & Allen, 2011; Heilbrun, Dvoskin, & Heilbrun, 2009). A key aspect of threat assessment is its emphasis on considering the context and seriousness of the student's behavior: What were the circumstances surrounding the student's actions and what did the student intend by these actions?

Threat Assessment Versus *Zero Tolerance*

Threat assessment is an especially valuable approach because it provides schools with an alternative to zero tolerance suspension practices intended to prevent violence. Zero tolerance refers to discipline policies or practices that mandate a fixed punishment—typically long-term suspension or expulsion from school—that is applied without consideration of the context or seriousness of the behavior. Zero tolerance has proven to be a popular philosophy of discipline in American schools. Zero tolerance advocates contend that (a) removal of offending students will improve the school climate and learning environment for other students and (b) schools must send a strong message to offending students in order to improve their subsequent behavior (American Psychological Association Zero Tolerance Task Force, 2008). However plausible and compelling these contentions in support of zero tolerance may appear, they are empirical claims that can and should be tested rather than accepted on an intuitive basis.

The American Psychological Association Zero Tolerance Task Force (2008) conducted an extensive review of the educational research literature and found that there is no evidence that zero tolerance policies improve school conditions or have a positive impact on offending students; on the contrary, the available evidence suggested that these contentions were wrong.

With regard to the first contention, schools with higher rates of suspension and expulsion have less satisfactory ratings of school climate across a variety of measures and, perhaps most important, have lower levels of schoolwide academic achievement, even after controlling for student demographics such as socioeconomic status (American Psychological Association Zero Tolerance Task Force, 2008). Furthermore, a recent study of 289 Virginia public high schools found that schools with high suspension rates tended to have dropout rates approximately 56% higher than schools with low suspension rates (Lee, Cornell, Gregory, & Fan, 2011). The association between suspension and dropout rates was maintained even after controlling for key factors that might explain the connection. Suspension rates were positively linked to dropout rates even after statistically controlling for student demographics and for student attitudes

toward following school rules and not engaging in aggressive behavior. Although correlational findings do not demonstrate causality, it is difficult to maintain that school suspension improves school outcomes when the correlations are in the opposite of the expected direction.

Other studies have examined the impact on students who are suspended from school. Suspension is intended as a corrective consequence to improve student behavior, but students who are suspended from school tend to engage in higher rates of subsequent misbehavior rather than improve their behavior, and they are more likely to be suspended again (Hemphill, Toumbourou, Herrenkohl, McMorris, & Catalano, 2006). Based on a national longitudinal study, Carpenter and Ramirez (2007) found that suspended students were more likely to experience academic difficulties and drop out of school, even after controlling for a variety of individual, family, and school factors.

Although suspension is intended to send a strong message that certain behavior will not be tolerated at school, there may be unintended messages that have a stronger impact on students, such as the implication that the student is not wanted at school (Sheets & Gay, 1996). Suspension may generate feelings of disengagement from school and has the substantial disadvantage of depriving the student of instructional time. School suspension can have serious academic consequences for students who may not have the motivation or skills to catch up on missed classes (Arcia, 2006).

An additional problem is that zero tolerance policies are developmentally inappropriate because they do not consider the context and meaning of the adolescent's behavior. Inflexible applications of zero tolerance have resulted in numerous cases in which schools have administered disproportionately harsh consequences for minor violations (Cornell, 2006). For example, students have been removed from school for misbehavior such as bringing a plastic knife to school for use at lunchtime, pointing a finger like a gun and playfully pretending to shoot someone, and making threatening statements in jest. Such cases may be highly publicized and bring public criticism to school authorities, such as in the case of the Delaware 6-year old suspended for bringing his Cub Scout camping utensil to school (Urbina, 2009).

The prime example of zero tolerance is found in the federal Gun-Free Schools Act, which mandates each state to have a law requiring local education agencies to expel from school for at least 1 year any student found to have brought a firearm to school or to have possessed a firearm at school (U.S. Department of Education & Office of Safe and Drug-Free Schools, 2010). A recent report reveals that in 2006-2007, Virginia schools expelled 119 students for this reason, an expulsion rate of 10.0 students per 100,000 that was higher than the national average of 6.1 per 100,000 and 9th highest in the nation (U.S. Department of Education & Office of Safe and Drug-Free Schools, 2010).

Although bringing an unauthorized firearm or illegal drugs to school is a serious matter, zero tolerance has expanded to include expulsions for nonfirearms such as toy guns, water pistols, and even tiny plastic accessories to action figures that are shaped like guns (Cornell, 2006). More generally, zero tolerance policies have encouraged a greater use of long-term school suspension as a disciplinary consequence (American

Psychological Association Zero Tolerance Task Force, 2008; Losen & Skiba, 2010). In 2006-2007, approximately 3.3 million students were suspended and 102,000 students were expelled from school (Planty et al., 2009). In Virginia schools, which enrolled 1.2 million students in 2006-2007, there were 224,436 short-term suspensions (defined as 10 days or less), 7,943 long-term suspensions (11-365 days, including 2,136 expulsions that were subsequently reduced to long-term suspensions), and 1,189 expulsions (suspensions greater than 356 days; Virginia Department of Education, 2008).

In summary, zero tolerance is a politically popular but scientifically unsupported practice that has not met expectations that it would improve the school climate for all students and deter further misbehavior by offending students. On the contrary, suspension appears to have harmful effects on students and brings negative attention to school authorities when they impose excessively harsh sanctions on students for seemingly minor misbehavior.

Virginia Student Threat Assessment Guidelines

The Virginia Student Threat Assessment Guidelines (Virginia Guidelines) were developed for K-12 schools in response to the Federal Bureau of Investigation and Secret Service reports recommending that schools use a threat assessment approach. Threat assessments are conducted by a multidisciplinary team consisting of a school administrator (typically the principal or assistant principal), a law enforcement officer or school resource officer, and one or more mental health professionals (often a school psychologist and school counselor). Training typically takes place in a 1-day workshop, although team members are advised to study the manual independently. In addition, the school administration must orient the school faculty and staff as well as adapt disciplinary policies to accommodate the new approach.

The Virginia Guidelines are described in a 145-page manual (Cornell & Sheras, 2006) that leads team members step-by-step through the threat assessment process. In brief, the Virginia Guidelines steer school teams through a decision tree that begins with a threat being reported to the team leader, who then initiates a series of interviews to assess the content and context of the threat or threatening behavior. In the simplest cases, a team member makes an effort to address the conflict or problem that led the student to make a threat. In the course of this preliminary assessment, the team determines whether the case can be resolved as a transient threat (e.g., a remark made in jest or in a brief state of anger) or will require more extensive assessment and protective action as a substantive threat. In the most serious cases, the team will conduct a comprehensive safety evaluation that would include both a law enforcement investigation and a mental health assessment of the student.

This threat assessment model emphasizes a problem-solving approach as distinguished from a more punitive, zero tolerance approach. School staff members are oriented to consider the context and seriousness of student behaviors rather than apply a fixed rule regardless of circumstances. They are advised to regard threats as a symptom of an underlying problem or conflict the student has been unable to resolve rather

than simply as a disciplinary matter meriting punishment. School staff members are especially encouraged to regard bullying as a serious problem that often involves threats of violence, either made by bullies to intimidate their victims or, sometimes, by victims who aspire to take revenge. The fact that revenge against bullying was a motivating factor in many school shootings (O'Toole, 2000; Vossekuil et al., 2002) lends credence to this approach. The Virginia Guidelines encourage the use of counseling and resolution of conflicts and discourage the use of school suspension except in the most serious cases when a short-term suspension may be necessary as a safety precaution.

Over the past decade, a series of studies have documented the development and field-testing of the Virginia Guidelines. The first field test involved school-based teams in 35 public schools that investigated 188 student threats over 1 school year (Cornell et al., 2004). Most of the cases (70%) were resolved as transient threats through an explanation or apology, although often with some disciplinary consequences and counseling. The remaining 30% were substantive threats that required protective action and the development of a plan to address the underlying conflict or problem that drove the student to make a threat. Only three students (each with a lengthy record of disciplinary violations) were given long-term suspensions. Approximately half of the students received short-term suspensions (typically 1-3 days), and nearly all students were able to return to their original school. The following year, researchers conducted follow-up interviews with school principals and found that none of the threats were carried out.

A second study (Strong & Cornell, 2008) examined 209 cases in a large urban school district. These cases were referred for assessment by school principals as their most serious disciplinary matters and included 109 threats to kill, shoot, or stab someone. The threat assessment team developed individualized plans for each case, typically involving a combination of counseling to resolve interpersonal conflicts or disputes, various forms of mental health services, and academic assistance. Almost all of the students were able to return to school or transfer to an alternative school. Only five students were not recommended for return to school (i.e., expelled). The study also found evidence of improved student behavior with a 55% reduction in disciplinary referrals for the students who made threats and subsequently returned to school. Again, there were no reports of any threats being carried out.

The two field-test studies of the Virginia Guidelines found that schools could carry out a threat assessment approach with seemingly positive outcomes but are limited by the absence of comparison groups. A third study (Cornell, Sheras, Gregory, & Fan, 2009) conducted a retrospective comparison of 95 high schools reporting use of the Virginia Guidelines, 131 schools reporting use of locally developed procedures, and 54 schools reporting no use of a threat assessment approach. A school climate survey was administered to randomly selected samples of students in each school as part of a statewide assessment of safety conditions. On this survey, students in schools using the Virginia Guidelines reported less bullying in the past 30 days, greater willingness to seek help for bullying and threats of violence, and more positive perceptions of the school climate than students in either of the other two groups of schools. It was

remarkable that evidence for a lower rate of bullying was based on student reports, since students were not involved in training or implementation of the threat assessment model. Notably, the school climate results also showed that students in schools using the Virginia Guidelines perceived that school staff members treated students with fairness and respect and were concerned about bullying and willing to help stop it.

Another important finding was that schools using the Virginia Guidelines had approximately one-third fewer long-term suspensions, although not short-term suspensions, than schools in the other two groups. This outcome is consistent with the view that threat assessment can provide schools with an alternative to zero tolerance practices. The evidence for lower suspension rates was not based on student reports but on school discipline records maintained by the school administration as a state education requirement. None of the group differences in student perceptions or school records found in this study could be attributed to school size, minority composition, or socioeconomic status of the student body; neighborhood violent crime; or the extent of security measures in the schools, which were statistically controlled. An important limitation of this high school study, however, is that there was no pre-post assessment of suspension rates before and after the schools adopted the threat assessment model.

In summary, the Virginia Student Threat Assessment Guidelines provide schools with an alternative to zero tolerance suspension of students when a student has threatened an act of violence. Using the Virginia Guidelines, a multidisciplinary team can conduct a student threat assessment following a seven-step decision tree. A series of field-test studies have found that threat assessments could be conducted safely and efficiently, with most cases resolved quickly without an elaborate process. Moreover, almost all of the students were able to return to school without use of long-term suspension.

The Present Study

The present study was designed to take the next logical step in research on the Virginia Guidelines by examining changes in a group of high schools that implemented the Virginia Guidelines in comparison with a control group of high schools that relied on their routine approach to student threats. The study consisted of two phases: (a) examining the effects of training on school staff and (b) determining whether there were any differences in school suspensions and disciplinary infractions after the Virginia Guidelines were implemented.

An ideal study would consist of a randomized controlled trial comparing schools using the threat assessment model with a comparison group of schools using an alternative model, but there are substantial practical, logistical, and ethical difficulties in conducting real-world experiments on safety procedures in schools (Astor, Guerra, & Van Acker, 2010; Cornell & Allen, 2011). School administrators are understandably reluctant to experiment with safety and discipline practices or to expose control schools to potentially inferior outcomes. As a result, researchers must consider the use

of quasi-experimental designs and data sources that take advantage of research opportunities that school officials are willing to accommodate. Moreover, because research-driven demonstration projects often yield program effects that are substantially more favorable than those found in scaled-up implementations or routine practice conditions (Astor et al., 2010; Wilson, Lipsey, & Derzon, 2003), it can be useful to examine program effects in more naturally occurring circumstances.

The present study was intended to investigate the effect on disciplinary infractions and suspension practices in high schools that adopted the Virginia Student Threat Assessment Guidelines. The previous study reporting a lower rate of long-term suspensions and student-reported bullying (Cornell et al., 2009) had two important limitations: (a) there had not been documentation of staff training and preparation to implement the Virginia Guidelines with fidelity and (b) as a cross-sectional study, there was no assessment of change over time to demonstrate an actual reduction in school suspensions and bullying after implementation of the threat assessment model. The present study was conducted on a convenience sample of 23 high schools in a single school division that chose to adopt the Virginia Guidelines as a school safety strategy. Because the 23 high schools implemented the Virginia Guidelines during the same year, it was possible to conduct a quasi-experimental study that examined changes over time and compared schools adopting the threat assessment model with other schools that did not use the model.

In the first phase of the study, 142 staff members—principals, psychologists, social workers, and security officers—participated in a 1-day training workshop to prepare them to implement the Virginia Guidelines. Workshop participants completed a routine training evaluation survey before and after the workshop to document increased knowledge of threat assessment and changes in attitudes toward school discipline consistent with the Virginia Guidelines.

In the second phase of the study, changes in school suspensions and school disciplinary infractions were measured for the school year prior to implementation of the threat assessment model and compared with the school year after implementation. Furthermore, it was possible to compare the suspensions and disciplinary infractions in these schools with a comparison group of high schools in demographically similar school divisions that had not adopted the Virginia Guidelines. These outcome measures were derived from public data that can be downloaded from the website of the Virginia Department of Education (2008). Previous research has found that suspension rates and disciplinary infractions are linked to a school's enrollment size, proportion of minority students, and proportion of students eligible for free or reduced price meals (Gottfredson, Gottfredson, Payne, & Gottfredson, 2005; Leithwood & Jantzi, 2009; Raffaele Mendez, Knoff, & Ferron, 2002; Skiba, Rausch, & Ritter, 2004). In order to distinguish the effects of using the Virginia Guidelines from demographic differences between the two groups of schools, each school's enrollment size, proportion of minority students, and proportion of low-income students were statistically controlled.

Method

Participants

The target sample of schools consisted of 23 public high schools in a large Virginia school division whose central administration decided to implement the Virginia Student Threat Assessment Guidelines. The 23 schools enrolled an average of 1,891 students per school. The percentage of minority students in the schools averaged 51% and the percentage of students eligible for reduced-price meals averaged 19%.

The comparison group consisted of all 26 high schools in the three largest school divisions in Virginia that had not adopted the threat assessment guidelines. These school divisions were considering whether to adopt the threat assessment guidelines but had not done so. The school divisions were all located in the heavily populated northern and eastern part of the state and served a student population with similar demographics. The 26 comparison schools enrolled an average of 2,065 students per school. The percentage of minority students in the schools averaged 45%, and the percentage of students eligible for reduced price meals averaged 21%. A preliminary analysis using *t* tests found no statistically significant differences between the two groups of schools on school enrollment size, proportion of minority students, or proportion of students eligible for a free or reduced-price meal.

The central administration selected staff members in the 23 target schools to attend training on the threat assessment guidelines. The 142 staff members consisted of 59 principals or assistant principals, 20 school psychologists, 22 social workers, 18 school security officers, and 12 others. Approximately 70% of the staff members identified themselves as White, 19% as Black/African American, and 11% as another group such as Hispanic or Asian/Pacific Islander or as multiracial.

Procedures

School administrators, mental health staff, and security officers in the target schools attended a standard 1-day workshop on the threat assessment model. The workshops were conducted by the two principal authors of the Virginia Student Threat Assessment Guidelines. In brief, the workshop presented the rationale for use of a threat assessment approach and then reviewed the decision tree model and procedures used to determine the seriousness of a student threat and take appropriate action. There was emphasis on resolving peer conflicts and bullying before these problems escalate into more serious acts of violence. The workshop presented numerous cases in which student threats are resolved without resorting to long-term suspension and reviewed field-test studies in which few students were given long-term suspensions. Next, participants worked in small groups to complete three case exercises. The final session of the workshop reviewed steps to take in informing staff, students, and parents about the new approach. At the beginning of the day, participants completed an anonymous pretest evaluation form, and at the end of workshop, they completed a posttest evaluation. The pretest and posttest forms were printed on opposite sides of a single sheet of paper so that they could be linked without identifying individual participants.

The threat assessment teams in each school were provided with a 145-page manual, *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006). There are chapters in the manual covering the rationale and purpose of threat assessment, the roles of each team member, and the decision tree for responding to transient and substantive threats. The manual contains numerous case examples of different types of threatening situations and how they were resolved. For cases involving a very serious substantive threat, there are chapters devoted to the mental health assessment of threatening students and to common pathways to violence identified in research on juvenile homicide. There are answers to frequently asked questions about legal, ethical, and practical issues and a chapter reviewing research support for the Virginia Guidelines. Finally, there are chapters on the integration of threat assessment into a comprehensive schoolwide approach to violence prevention and the selection of interventions for students receiving special education services. The manual concludes with a series of case exercises that can be used to test team members' knowledge of the Virginia Guidelines.

In order to accommodate the large number of school staff and their varying schedules, there were identical training workshops held on three occasions during the 2007-2008 school year ranging from November to April. As a result, the Virginia Guidelines were phased in by each school at varying times during the school year. For this reason, the school year prior to the training year was used as the baseline period, and the school year after the training year was used as the outcome period, omitting the year during which training occurred.

To facilitate implementation of the new model, the central administration disseminated a new policy statement on student threats that was approved by the school board. The administration also prepared standard forms that principals were required to complete for each threat assessment case. The forms included checklists for assuring that teams followed each step of the Virginia Guidelines. The forms are an important means of assuring faithful implementation of the Virginia Guidelines, because they require the team to consider each step of the decision tree and check off decisions and actions that reflect compliance with the procedures. However, for reasons of confidentiality, detailed information on case outcomes was not available from the schools. Consequently, data on school suspensions and disciplinary infractions for each school were limited to reports available from the public database of the Virginia Department of Education (2008).

Measures

Evaluation of training. The evaluation form was a modified version of the instrument used in a previous study (Allen, Cornell, & Lorek, 2008). Items were derived from a content analysis of key points covered by the workshop (e.g., that student profiling is not an effective approach, that many cases can be resolved without suspension) as well as the ability to apply the threat assessment guidelines to classify student scenarios as transient or substantive threats. Each item was answered on 4-point scale (1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly agree*). In the previous study, the evaluation form demonstrated adequate reliability and showed consistent effects

across school occupations. The form used in the present study included 10 items that were administered on both pretest and posttest forms. The 10 items had internal consistency (Cronbach's α) of .65 at pretest and .74 at posttest, which was nearly identical to the values found in the previous study. These levels of internal consistency suggest that the knowledge scores were not homogeneous measures of a single construct but could be considered acceptable as an index of a more complex construct (Streiner, 2003).

The posttraining form also included four items designed to assess participant satisfaction with the training (e.g., "The training provided the right amount of practical information"). As measures of a more homogeneous construct, these four items demonstrated somewhat higher internal consistency (.82). A fifth item assessed intent to implement the training, "I intend to use principles of student threat assessment in my school." All five items were answered on the same 4-point scale ranging from *Strongly disagree* to *Strongly agree*.

School records. The Virginia Department of Education requires principals to report student suspensions and other disciplinary actions using a standard set of reporting conventions and 88 categories of disciplinary infractions. These data were checked for accuracy and submitted electronically to the state by each school administration. State records for each year provided the total number of long-term suspensions (>10 days) and short-term suspensions (<10 days) for each high school irrespective of infraction categories. These two measures yielded indices of the rate of serious disciplinary actions taken at each school. These two disciplinary outcomes were selected for study because an important goal of threat assessment is to reduce long-term suspensions.

In addition, four categories of disciplinary infractions were selected for study because of their relevance to threat assessment cases: assaults of other students, threats of other students, and bullying of other students. Student threats of staff members were also selected for study, but there were too few student assaults of staff members (most schools had no incidents or one incidents) to conduct analyses. Totals for each school year were converted to rates based on the fall school enrollment for the corresponding year. Additional data on school size, proportion of minority students, and proportion of students eligible for free or reduced-price meals were obtained from official enrollment reports for the fall of the training year.

Results

Effects of Training Workshop

A multivariate repeated measures analysis of variance compared pretest and posttest scores on the 10 items measuring knowledge of threat assessment gained in the staff workshop. The multivariate test for the pre- and posttest score differences on the 10 items was statistically significant: Wilks's $\Lambda = .318$, $F(10, 103) = 22.1$, $p < .001$, and the statistical significance was accompanied by a large effect size ($\eta^2 = .68$). Table 1 presents univariate tests for the pre- and posttest score differences for each of the 10 items. For 9 of the 10 items, there was a statistically significant change from pretraining

Table 1.. Pre-Post Changes in 10 Training Survey Items

Training Survey Items	Pretraining Mean	Posttraining Mean	*t* (*df*)	Effect Size[a]
1. Violence in schools has increased over the past ten (10) years. (Disagree)	2.83	1.87	12.08 (138)*	1.03
2. A safety plan should be implemented for a transient threat. (Disagree)	3.12	2.19	13.09 (138)*	1.11
3. If a student threatens an act of violence, immediate suspension is necessary. (Disagree)	2.55	1.97	8.80 (137)*	0.75
4. When conducting an interview with a student about an alleged threat, the student should be reassured that the interview is confidential. (Disagree)	2.13	1.60	8.04 (137)*	0.68
5. Conflict between students of equal status and strength constitutes bullying. (Disagree)	2.05	2.09	−0.63 (133)	−0.06
6. Profiling is an effective method to identify students who may commit violent acts. (Disagree)	2.12	1.59	8.51 (132)*	0.74
7. If an angry student says, "I'm gonna kill you for that," but later calms down and apologizes, the threat is substantive. (Disagree)	2.22	1.59	3.93 (130)*	0.34
8. A student who tells friends that he will beat up someone in the parking lot after school today is most likely making a transient threat. (Disagree)	2.50	1.98	8.20 (128)*	0.72
9. I am concerned that a homicide could occur in my school. (Disagree)	2.25	1.97	5.34 (129)*	0.47
10. We need zero tolerance for student threats of violence in my school. (Disagree)	2.58	2.10	8.06 (131)*	0.70

Note. *df* = degrees of freedom. Items were answered on a 4-point scale where 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly agree*. The desired response is indicated after each item in parenthesis. The 10 items were compared initially in a multivariate repeated measures analysis of variance: Wilks's Λ = .318, $F(10, 103) = 22.12$, $p < .001$, $\eta^2 = .682$. In follow-up to the multivariate test, 10 univariate dependent sample *t* test values are reported here.

a. Effect size is based on standardized mean difference between pre- and posttest scores on each item ($D = \bar{X}_{pre} - \bar{X}_{post}$) and is computed as Effect size $= \frac{D}{STD_{(D)}}$

*$p < .01$.

Table 2. Posttraining Satisfaction

Workshop Satisfaction Items	Percentage Agree or Strongly Agree
This training improved my understanding of student violence.	93
I understand the basic concepts and guidelines for conducting a threat assessment.	98
The training contained the right amount of practical information.	96
This training will be helpful to me in responding to student threats of violence.	96
I intend to use principles of student threat assessment in my school.	99

Note. $N = 142$. Items were answered on a 4-point scale where 1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly agree*.

to posttraining, with effect sizes ranging from moderate (e.g., 0.47) to very large (e.g., 1.11). There was no statistically significant change for the item: "Conflict between students of equal status and strength constitutes bullying" (correct answer: *disagree*).

As shown in Table 2, the percentage of participants who agreed or strongly agreed with statements measuring their satisfaction with the training indicated positive results: 93.4% for "This training improved my understanding of student violence," 97.9% for "I understand the basic concepts and guidelines for conducting a threat assessment," 96.4% for "The training contained the right amount of practical information," and 96.4% for "This training will be helpful to me in responding to student threats of violence." Most importantly, 99.3% agreed that "I intend to use principles of threat assessment in my school."

Comparison of School Groups

The primary analyses consisted of repeated measures analyses of covariance (ANCOVAs) that contrasted the 23 target schools with the 26 comparison schools on five disciplinary outcomes from the baseline year to the posttraining year. Each repeated measures ANCOVA included school enrollment size, proportion of minority students, and proportion of students eligible for a free or reduced-price meal as covariates. Preliminary analyses showed that the two groups of schools (23 target schools with threat assessment training vs. 26 comparison schools without such training) did not differ statistically on any of the three school covariates (school size: $t = -1.124$, $p > .05$; proportion of minority students: $t = 1.232$, $p > .05$); proportion of free-reduced lunch: $t = -.689$, $p > .05$).

The key analysis of interest in each ANCOVA was the interaction effect between school group (between-school factor) and time (baseline to posttraining year, the within-school factor). This interaction represents the difference between target and comparison schools in the change of disciplinary outcomes from the baseline year to the posttraining year. The existence of an interaction effect in the expected direction

Table 3. Group Comparisons on the Change of School Suspensions and Disciplinary Infractions from Baseline to Follow-Up

	Trained Schools (N = 23)		Comparison Schools (N = 26)		
	Baseline Mean	Follow-Up Mean	Baseline Mean	Follow-up Mean	Interaction Effects, F Value
Long-term suspension rate	.0082	.0039	.0109	.0109	4.69*
Short-term suspension rate	.0918	.0983	.2024	.1994	0.81
Bullying infraction rate	.0053	.0011	.0012	.0020	25.79*
Student assault rate	.0018	.0022	.0024	.0020	0.44
Student threat rate	.0017	.0010	.0028	.0025	0.14
Teacher threat rate	.0017	.0009	.0018	.0014	0.79

Note. The interaction effects measure differences between Target and Comparison schools in their change from baseline to follow-up with 1 and 44 degrees of freedom.
*$p < .05$.

would represent evidence for the effectiveness of the intervention (the adoption of the threat assessment model in the school). As presented in Table 3, there was a statistically significant interaction effect for the outcome of long-term suspensions: Wilks's $\Lambda = .90$, $F(1, 44) = 4.68$, $p = .036$, $\eta^2 = .096$. Figure 1 presents the interaction pattern showing the change in long-term suspension rate from baseline to follow-up for the two groups of schools. The interaction pattern indicates that the long-term suspension rate in target schools dropped from baseline to follow-up, while the comparison schools showed little change.

The ANCOVA for bullying infractions also found a statistically significant interaction effect: Wilks's $\Lambda = .63$, $F(1, 44) = 25.79$, $p < .001$, $\eta^2 = .37$. Figure 2 presents the interaction pattern for bullying infractions rates. The target schools had higher bullying infractions than the comparison schools in the baseline year, which however dropped considerably by the follow-up year, whereas the comparison schools experienced a slight increase in the follow-up year. There were no statistically significant interaction effects for the remaining four disciplinary outcome variables (rates of short-term suspensions, student assaults, student threats, or teacher threats).

Discussion

The most important finding from this study is that high schools adopting the Virginia Student Threat Assessment Guidelines experienced a decline in long-term suspensions. The baseline annual rate of 8.2 long-term suspensions per 1,000 students dropped approximately 52% to 3.9 per 1,000 students in these schools, whereas the comparison schools held steady at 10.9 suspensions per 1,000 students in both years. These findings are consistent with our previous study (Cornell et al., 2009), which

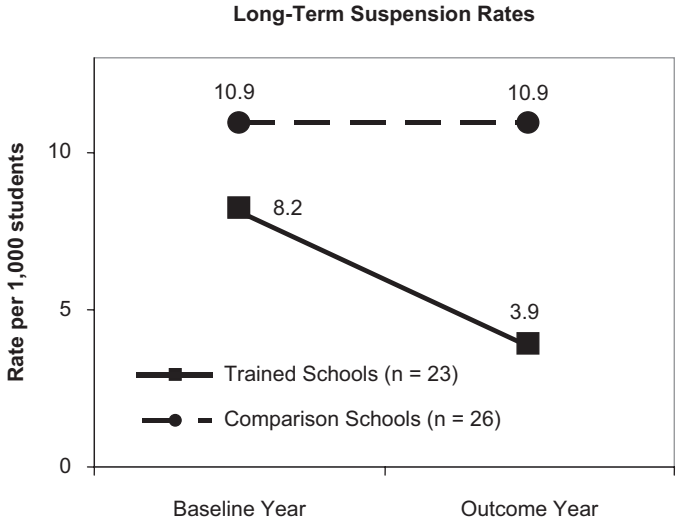

Figure 1. Statistically significant interaction pattern in long-term suspension rates at baseline and follow-up

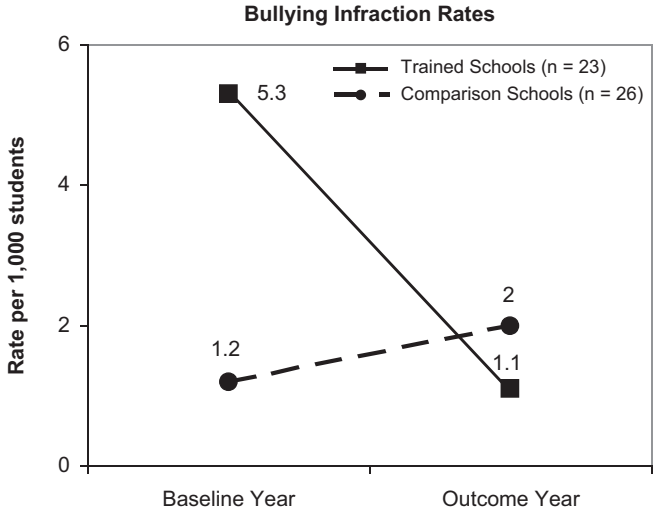

Figure 2. Statistically significant interaction pattern in long-term bullying infraction rates for two groups of schools at baseline and follow-up

also found that high schools using the threat assessment model had fewer long-term suspensions than other high schools. A distinguishing feature of the present study, however, is that it employed a quasi-experimental design rather than the less rigorous cross-sectional design in the previous study. These study findings support the conclusion from the previous study that school administrators using the threat assessment model did not need to use long-term suspensions as a disciplinary consequence as often as other schools. The threat assessment model gives administrators an alternative to zero tolerance policies that usually require long-term suspension of students regardless of the circumstances of the student's misbehavior.

The reduction in long-term suspensions is an important benefit of using a threat assessment approach to violence prevention. High suspension rates are consistently associated with higher school failure and dropout rates (Hemphill et al., 2006; Lee et al., 2011).The most troubled and academically at-risk students are most likely to engage in threatening behavior (Kaplan & Cornell, 2005). Suspension of these students from school means lost instructional time that may perpetuate and worsen their academic difficulties, leading to further decline in school performance. Scott and Barrett (2004) found that students lose an average of 6 hours of instructional time for each day suspended. A threat assessment approach sends students the message that their problems will be addressed but that their school attendance remains a priority.

The shift away from use of long-term suspensions does not mean that students went unpunished for their actions. The Virginia Guidelines recommend that students receive appropriate disciplinary consequences for violations of the school's code of conduct. These consequences are determined by school authorities, although it is recommended that schools consider positive behavioral approaches (Mayer, 1995; Sugai et al., 2000) to discipline as well as restorative disciplinary practices in which students make amends for any harm they have caused to others (Costello, Wachtel, & Wachtel, 2009). In this way, students learn that punishment is proportional to the seriousness of their misbehavior and the harmful consequences that it has on others.

There was further evidence of the benefits of using a threat assessment approach in the reduction in bullying infractions. Although the rate of bullying infractions was higher in the target schools than the comparison schools at baseline, by the follow-up year, the rate had dropped 79% and was below that of the comparison schools. The threat assessment guidelines emphasize efforts to address bullying and this finding would suggest that the target high schools were able to reduce bullying, perhaps through greater attention to student threats, which often turn out to be associated with a bullying situation. More information about levels of bullying in the school is needed to elucidate how this reduction took place. It would be useful to have student or teacher reports of bullying levels at baseline and follow-up. In the previous study (Cornell et al., 2009), student survey data indicated lower rates of bullying as well as greater willingness to seek help in schools using the threat assessment guidelines. There was no change in the other disciplinary infractions examined in this study, including assaults of students, threats of students, or threats of teachers.

The pre-post evaluation of staff training found that school administrators and other staff members showed substantial increases in knowledge of threat assessment principles, with a large overall effect size and moderate to large effects for 9 of 10 items. These findings are consistent with a previous study of staff training in threat assessment showing similar effects (Allen et al., 2008). Notably, after training, staff members endorsed less support for zero tolerance and willingness to suspend a student for a threatening statement. They also demonstrated understanding of the difference between a transient threat that can be easily resolved and a substantive threat that requires protective action.

The decision to adopt the threat assessment model was made by the central administration for the school system rather than the individual schools. From this perspective, it is noteworthy that the staff members gave highly positive evaluations of the training, with more than 93% of participants agreeing that the training improved their understanding of youth violence, contained the right amount of practical information, and prepared them to respond to student threats of violence. They also agreed that they understood the basic concepts and guidelines for conducting a threat assessment, and almost all participants (99%) expressed intent to use threat assessment principles in their school. This positive response to the training, combined with the efforts of the central administration to facilitate and encourage implementation of the Virginia Guidelines, may be key factors in achieving successful outcomes.

The implementation of any new program can be burdensome for school staff members who already have many competing demands for their time and energy. However, disciplinary matters involving threats of violence are inherently challenging, uncertain, and time-consuming. Use of the Virginia Guidelines can be helpful because most cases can be resolved expeditiously, and in more complex cases, there are clear guidelines that make the process more efficient. An anecdotal observation supports this claim: The initial group of administrators to adopt the Virginia Guidelines in this school system came to a training session held later in the year and reported that the new procedures were not difficult to follow and did not require an excessive amount of time. They voiced considerable encouragement for their colleagues to implement the Virginia Guidelines.

One recurrent issue in violence prevention is the issue of legal liability in the event that someone is injured. One virtue of the Virginia Guidelines is that it defines a clear standard of practice that makes the school administration's efforts defensible. The widespread adoption of the Virginia Guidelines in Virginia schools, and in school systems in more than a dozen states, demonstrates acceptance of this approach. Threat assessment offers schools the opportunity to engage in a violence prevention strategy that not only responds to the immediate threat but also considers the underlying problem or conflict that stimulated the student's threatening behavior. This emphasis on problem solving and dispute resolution is intended to help prevent further recurrence of conflict that could result in additional disciplinary problems.

Study Limitations

One important limitation to this study is that there was no specific information about individual threat cases or other indications of how the threat assessment guidelines were implemented. However, three previous studies have reported positive outcomes for more than 400 threat assessment cases conducted in schools after similar staff training (Cornell et al., 2004; Kaplan & Cornell, 2005; Strong & Cornell, 2008). In these cases, the school staff distinguished transient from substantive cases and developed intervention plans appropriate to the seriousness of the threat. There was a range of disciplinary consequences, with only a few extreme cases receiving long-term suspension. Moreover, the school administrators reported that none of the threats managed using the threat assessment model were carried out. Furthermore, one study (Strong & Cornell, 2008) was able to document a subsequent 55% reduction in disciplinary referrals for the students whose threats were handled by threat assessment model. This is a notable reduction because the cases referred for threat assessment were deemed by the school principals to be among the most serious disciplinary violations in the school and the students had a high rate of disciplinary problems prior to referral to the threat assessment team.

Another limitation to this study is that schools were not randomly assigned to receive threat assessment training or serve in the comparison group. A randomized controlled trial of threat assessment would provide stronger evidence of its effectiveness than the quasi-experimental design used in this study, although there are a number of practical and logistical problems with conducting such a study (Cornell & Allen, 2011). When school administrators decide to implement a violence prevention measure, they are understandably reluctant to delay implementation for half of their schools to participate in a control group.

A quasi-experimental study cannot rule out the possibility of preexisting differences between schools that might explain the presumed effects of the intervention—in this case, threat assessment training. However, the present study considered the potential impact of student demographics, including the school enrollment size, the proportion of minority students in the school, and the proportion of students eligible for a free or reduced-price meal. These variables are often associated with differences in school climate and disciplinary rates (e.g., Gottfredson et al., 2005) but were statistically controlled and could not have explained the findings in this study.

Future studies could employ random assignment of schools to either use the Virginia Guidelines or a zero tolerance approach. These studies should examine both the overall effects on school discipline infractions, as in the present study, and the impact on individual students. Students identified as making threats of violence in both groups could be followed over the course of their high school years and beyond. In schools using the Virginia Guidelines, it can be hypothesized that almost all students will be able to return to school and complete their education but that in schools not using a zero tolerance approach, students will be more likely to have long-term suspensions, experience academic difficulties and drop out of school.

In conclusion, an important goal of threat assessment is to identify and resolve student conflicts and problems without resorting to school suspension. As a problem-solving strategy that stresses the context and seriousness of the student's behavior, threat assessment represents a more flexible and less punitive alternative to zero tolerance discipline practices. The Virginia model also places special emphasis on the goal of addressing bullying, which often underlies student threats of violence. Consistent with these goals, the findings from this study suggest that high schools adopting the Virginia Student Threat Assessment Guidelines experienced a substantial decline in both long-term suspensions and bullying infractions.

Acknowledgments

We thank Peter L. Sheras, research assistants for the Virginia Youth Violence Project, and Fairfax County Public Schools for their participation in this project.

Declaration of Conflicting Interests

Dewey G. Cornell is the principal author of the Guidelines for Responding to Student Threats of Violence.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article:
This work was supported in part by a grant from the Office of Juvenile Justice and Delinquency Prevention of the U.S. Department of Justice. The views in this article do not necessarily reflect policies or recommendations of the funding agency.

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Bios

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School Psychology Review,
2012, Volume 41, No. 1, pp. 100–115

Children, Research, and Public Policy

A Randomized Controlled Study of the Virginia Student Threat Assessment Guidelines in Kindergarten Through Grade 12

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Abstract. This randomized controlled study examined disciplinary outcomes for 201 students who made threats of violence at school. The students attended 40 schools randomly assigned to use the Virginia Student Threat Assessment Guidelines or follow a business-as-usual disciplinary approach in a control group. Logistic regression analyses found, after controlling for student gender, race, school level, and threat severity, that the 100 students in the threat assessment group schools were more likely to receive counseling services (odds ratio [OR] = 3.98) and a parent conference (OR = 2.57), and less likely to receive a long-term suspension (OR = 0.35) or alternative school placement (OR = 0.13) than the 101 students in the control group schools. Implementation fidelity was associated with decreased long-term suspension (OR = 0.73). These results provide strong empirical support for the use of student threat assessment in primary and secondary schools.

Although severe acts of violence in school are relatively rare events, threats of violence are much more common and pose a serious problem for our nation's schools (Bo-

Dewey G. Cornell is principal author of the Virginia Student Threat Assessment Guidelines. The authors thank Donald Green, Louise Lockett, Edward Lorek, and Peter Sheras, as well as the staff members of Newport News Public Schools, for their participation in this project.

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rum, Cornell, Modzeleski, & Jimerson, 2010). A report by the National Center for Education Statistics (Nieman & Devoe, 2009) indicated that there were 20,260 student threats of physical attack involving a weapon and 461,910 threats of physical attack without a weapon in U.S. public schools during the 2007–2008 academic year. These threats occurred in more than two-thirds of the nation's middle and high schools, and more than one-third of the elementary schools. Moreover, approximately 7% of teachers reported being threatened with injury by a student and 4% reported being physically attacked by a student in 2007–2008 (Robers, Zhang, & Truman, 2010).

Threats of violence can be frightening and disruptive events for victims, witnesses, and others who learn about them. When school authorities learn of a threat, they may turn to school psychologists to evaluate the situation and make recommendations, but many schools use a zero tolerance model of discipline (American Psychological Association Zero Tolerance Task Force, 2008), which would require immediate removal of the offending student from school. Although suspension is intended as a corrective consequence to improve student behavior, students who are suspended from school tend to engage in higher rates of subsequent misbehavior and are more likely to be suspended again (Hemphill, Toubmourou, Herrenkohl, McMorris, & Catalano, 2006). High school-wide suspension rates are related to increased student dropout rates (Lee, Cornell, Gregory, & Fan, 2011). Moreover, suspension also may convey unintended messages that have a negative effect on students, such as the implication that the student is not wanted at school (Bowditch, 1993), and may generate feelings of disengagement from school as well as deprive the student of instructional time (Arcia, 2006).

Alternatively, school authorities could attempt to determine the seriousness of the threat and resolve the problem that generated the threat. An underlying dilemma for school authorities is that they dare not underreact to a serious threat, yet overreaction to a threat that is not serious also can lead to unnecessary work by staff and excessive disciplinary consequences for students. For example, in a nationally publicized case, a 6-year-old first grader in Delaware named Zacharie was found with a knife at school (Urbina, 2009). Under the school's zero tolerance policy, school authorities had no choice but to suspend Zacharie from school and order him to attend an alternative placement school for 45 days. However, investigation revealed that the boy had simply brought his camping utensil to eat lunch, and the utensil happened to include a knife along with a fork, spoon, and bottle opener. In the face of considerable public pressure and nationwide expressions of concern, the school board modified the suspension and allowed Zacharie to return to school (Urbina). A threat assessment approach would permit school authorities to make reasonable judgments when it is evident that a student's behavior does not constitute a serious threat of violence.

Threat Assessment

The Federal Bureau of Investigation (FBI; O'Toole, 2000) and the U.S. Secret Service (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) conducted studies of school shootings in response to the 1999 shootings at Columbine High School. Both studies concluded that schools should not rely on student profiling or a checklist of warning signs to identify potentially violent students. As the FBI report noted, "Trying to draw up a catalogue or 'checklist' of warning signs to detect a potential school shooter can be shortsighted, even dangerous. Such lists, publicized by the media, can end up unfairly labeling many nonviolent students as potentially dangerous" (O'Toole, 2000, p. 2).

The Secret Service report (Vossekuil et al., 2002) noted that over three-quarters of the student perpetrators had communicated their interest in mounting an attack at school to someone else, usually a friend or classmate. In almost every case, the boys had reportedly raised concerns among adults who knew them because of an emotional problem or interpersonal conflict. In more than two-thirds of cases, the boys felt bullied or harassed by

others, and were motivated to take revenge. These observations indicated that schools should focus their efforts on the identification and investigation of student threats as a violence prevention strategy.

Both the FBI (O'Toole, 2000) and Secret Service (Fein et al., 2002) reports recommended that schools train threat assessment teams. The FBI report cautioned that a threat by itself would not be sufficient to identify a violent student, succinctly observing, "All threats are not created equal" (p. 5). Instead, school authorities must investigate the context and meaning of a student's threat for the purpose of determining whether the student is engaged in other behaviors that demonstrate intention to carry out the threat. If the investigation indicates that the threat is genuine, the next step would be to take action to prevent it from being carried out. Although these authoritative reports made a compelling case for a threat assessment approach, there was no established model or set of procedures for schools to follow.

The Virginia Student Threat Assessment Guidelines

The Virginia Guidelines were developed to lead team members through the threat assessment process (Cornell & Sheras, 2006). Threat assessments are conducted by a multidisciplinary team consisting of a school administrator (typically the principal or assistant principal), a law enforcement officer or school resource officer, and one or more mental health professionals.

A school-based team is recommended because local staff will have greater familiarity with the students and be able to respond more quickly than an external team. Furthermore, most student threats can be resolved without an extensive process, so that use of an outside team would be inefficient and could magnify the importance of a minor incident. School principals or assistant principals lead the threat assessment team and are responsible for student discipline and safety, and the law enforcement representative should be a school resource officer who has been trained to work in schools. The school psychologist plays a critical role in responding to threatening behavior by (a) assisting in resolving less serious cases, (b) screening for mental health problems that demand immediate attention, (c) assessing why the student made the threat, and (d) making recommendations for dealing with the problem or conflict that stimulated the threatening behavior.

The Virginia Guidelines steer school teams through a seven-step decision tree (described in more detail later and in Cornell & Allen, 2011) that begins with a threat being reported to the team leader, who then initiates a series of interviews to assess the content and context of the threat or threatening behavior. In order for the process to be flexible and efficient, the first three steps represent a triage process in which the team leader (or another designated team member) determines whether the case can be quickly and easily resolved as a transient threat or will require more extensive intervention as a substantive threat. Transient threats include jokes, figures of speech, or expressions of anger that do not reflect a sustained or genuine intent to harm the other person that would constitute a substantive threat. If the student responds positively to the initial intervention, the threat can be resolved and the process ends at Step 3, but if the intervention is not successful, then the threat is considered substantive. The team must proceed to Step 5 for serious substantive threats and Steps 6 and 7 for very serious substantive threats.

Threat assessment can be viewed as a problem-solving approach to violence prevention that focuses on resolving the conflict or difficulty that stimulated the threat and working out a solution that allows the student to continue in school. School psychologists and other school-based mental health professionals can play a critical role in providing mental health counseling services for a wide range of student problems (Christner & Mennuti, 2008). A threat assessment may identify underlying problems with bullying or conflicts in friendships and romantic relationships. Underlying disputes with teachers may be problems with authority and social competence as well

as learning or attention problems. Other students may be undergoing stressful circumstances leading to emotional distress, anger, and depression. As a result, one goal of threat assessment is to initiate appropriate mental health counseling services for the student.

Parental involvement has been widely recognized as a critical factor in addressing student discipline and attendance problems (Epstein & Voorhis, 2010; Sheldon, 2007). Student threats often reflect problems that extend outside of school and collaborative relationships with parents can be critical to the success of intervention plans. As a result, the Virginia Guidelines encourage parent involvement in responding to student threats. An important reason for pursuing both mental health services and parental involvement is to devise a plan that allows the student to return to school safely without long-term suspension or alternative school placement.

Previous Studies of the Virginia Guidelines

The first field test of the Virginia Guidelines involved school-based teams in 35 public schools that investigated 188 student threats (Cornell et al., 2004). Most of the cases (70%) were resolved as transient threats through an explanation or apology accompanied by brief counseling and relatively minor disciplinary consequences. The remaining 30% were substantive threats that required protective action and the development of a plan to address the underlying conflict or problem that drove the student to make a threat. Approximately half of the students (94 of 188) received short-term suspensions (typically 1–3 days) and only 3 students were given long-term suspensions (>10 days). Nearly all students (173 of 188) were able to return to their original school. Follow-up interviews with school principals indicated that none of the threats were carried out. Although it is possible that some students were able to engage in a fight that was never disclosed to school authorities, they were confident that the more serious threats of killing, shooting, and stabbing were not carried out.

A second field test (Strong & Cornell, 2008) was conducted in a large urban school district using a centralized threat assessment team. This was a more selective sample of 209 students who were referred for assessment by school principals as their most serious disciplinary cases, and involved 109 threats to kill, shoot, or stab someone. Even though these were regarded as among the most serious disciplinary cases in the school, nearly half (49%) were resolved as transient cases. The threat assessment team developed individualized plans for each case that involved a variety of student mental health services and academic support efforts, such as brief counseling to resolve interpersonal conflicts and academic tutoring. A majority of the students were able to return to school (121 of 209, 61%) or transfer to an alternative program or different school (51 of 209, 24%). The study also found evidence of improved student behavior with a 55% reduction in disciplinary referrals after the students who made threats returned to school. As in the first field test, school authorities reported that none of the threats were carried out.

Cornell, Sheras, Gregory, and Fan (2009) conducted a retrospective comparison of 95 high schools reporting use of the Virginia Guidelines, 131 schools reporting use of locally developed procedures, and 54 schools reporting no use of a threat assessment approach. Students at schools that used the Virginia Guidelines reported less bullying in the past 30 days, greater willingness to seek help for bullying and threats of violence, and more positive perceptions of school staff members than students in either of the other two groups, and there were one-third fewer long-term suspensions, after controlling for school size, minority composition and socioeconomic status of the student body, neighborhood violent crime, and the extent of security measures in the schools (Cornell et al., 2009). A quasi-experimental study with 23 high schools and 26 control group schools found a 52% reduction in long-term suspensions and a 79% reduction in bullying infractions after implementing the Virginia Guidelines, but the con-

trol group schools showed little change (Cornell, Gregory, & Fan, 2011).

Beyond the line of research with the Virginia Student Threat Assessment Guidelines, there is little published research on the use of threat assessment in schools. The Dallas Threat of Violence Risk Assessment (DTVRA) was designed to help school personnel assess student threats (Van Dyke & Schroeder, 2006). The DTVRA consists of 19 risk factors derived from a review of literature on risk factors for violence. Each item is rated as low, medium, or high, and assigned a score of 1, 2, or 3, respectively. Although such a structured system can be appealing, the scoring system and cutoff points were "arbitrarily chosen by the committee without empirical validation" (Van Dyke & Schroeder, 2006, p. 608). The DTVRA has been widely used, but there is little research that examines the validity of resulting decisions (Van Dyke & Schroeder, 2006). Van Dyke (2008) examined the interrater reliability of the DTVRA using four fictional case scenarios rated by school counselors, but there appeared to be no controlled studies of its use in school settings.

Present Study

Although there are considerable data collected from field testing and quasi-experimental designs, no experimental evaluations have been conducted regarding the Virginia Guidelines. Therefore, the goal of the current study was to randomly assign participating schools to either receive training in the Virginia Student Threat Assessment Guidelines or to participate in a wait-list control group that would receive training the following year. The study began with a one-day workshop on threat assessment for the treatment group schools. Then researchers gathered outcome data for students who made threats of violence in the two groups of schools. Based on previous data, we hypothesized that students who made threats of violence in the Virginia Guidelines schools would be (a) more likely to receive mental health counseling services, (b) more likely to have parental involvement in response to the threat, but (c) less likely to be given a long-term suspension and (d) less likely to be placed into an alternative school setting than students attending schools in the control group. Finally, the effect of implementation compliance on the provision of mental health services, parental involvement, long-term suspension, and alternative school placements was also examined.

Method

Participants and Settings

The participants consisted of 201 students identified by school authorities as making a threat of violence during the school year, including 100 who attended intervention schools and 101 who attended control schools. The student grade levels ranged from kindergarten to 12th grade, with 89 (44.3%) in elementary school, 59 (29.4%) in middle school, and 53 (26.4%) in high school. Most (73%) of the students were boys. Based on school records, approximately 24% of the students were identified as White and 76% racial minority (73% African American and 3% Hispanic). The higher proportion of male and minority youth in the sample is consistent with the higher rates of disciplinary violations observed in this demographic group in the school system as a whole. Student academic records and information on student eligibility for free or reduced-price meals were not available to the researchers. χ^2 analyses revealed that, across the intervention and control schools, there were no statistically significant group differences in gender [$\chi^2_{(df = 1,\ N = 201)} = 0.13$, $p = .72$], or across the school level (elementary, middle, and high) [$\chi^2_{(df = 2,\ N = 201)} = 2.79$, $p = .25$], but there tended to be a statistically higher proportion of minority students in the control group [$\chi^2_{(df = 1,\ N = 201)} = 4.10$, $p = .04$].

The students in the study attended 40 schools in an urban/suburban school system located in southeastern Virginia. The school system enrolled approximately 32,000 students in 26 elementary schools, 8 middle schools, and 6 high schools. Approximately 58% of the students were African American, 31% White, 6% Hispanic, and 5% from other

racial/ethnic groups. Nearly half (46%) were classified as economically disadvantaged, based on federal criteria for the free and reduced-price meal program. At the onset of the study, the school system reported a higher annual rate of disciplinary violations than state and regional averages, with 4,230 incidents of disorderly or disruptive behavior, 4,259 offenses that involved physical aggression against students, staff, or other persons, and 183 offenses that involved weapons. Overall, the school system reported 389 long-term suspensions and 90 expulsions during the academic year.

One half of the schools were randomly assigned by coin toss to receive training in the Virginia Student Threat Assessment Guidelines at the beginning of the school year and participate in a study of student outcomes during the ensuing school year. The remaining half served as a wait-list control group that would receive training the following year. Randomization was blocked on school type (elementary, middle, or high schools).

The usual practice across both groups of schools was for the student to be suspended from school for making a threat. In both the intervention and control groups of schools, students were typically suspended from school (75% and 73%, respectively) and were rarely referred for support services (15% and 18%, respectively). The groups were also similar on key disciplinary and academic outcome measures. The annual short-term suspension rates for the whole school were 26.8 per 100 students for the intervention group and 26.9 per 100 students in the control group. The long-term suspension rates were approximately 0.5 per 100 students in both groups. Moreover, the percentage of students who passed the state accountability tests at Grades 5, 8, and 9–12 was 86.5% and 86.7% in English/reading for intervention and control groups respectively, and 84.7% and 82.3% in mathematics.

Measures

Evaluation of training. At the beginning of the training day, participants completed an anonymous pretest evaluation form and at the end of the workshop they completed a post-test evaluation. The evaluation form was a modified version of the instrument developed and tested in a previous study (Allen, Cornell, & Lorek, 2008), which found that workshop participants demonstrated large (effect size $\eta^2 = 0.79$) increases in knowledge of threat assessment.

The present study shortened the form to 15 items in order to make the instrument more efficient. Each item was rated on a 4-point scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*). Internal consistency coefficients were calculated for both pretest ($\alpha = .62$) and post-test ($\alpha = .60$) forms. These values suggested that the items were not homogeneous measures of a single construct, but could serve as an index of a more complex construct (Streiner, 2003). It was judged that it was more important to cover a wider range of content than to focus on a narrower content base in order to achieve higher internal consistency.

Compliance or treatment integrity. The researchers gathered information on staff implementation of the model with fidelity. Evidence of compliance was gathered from a series of relatively objective indicators. First, the researchers considered whether the school sent one or more staff members to attend the training, and then whether the team members held meetings on their own at school, as recommended in the training. The researchers also noted whether the teams attended a booster training session and whether they completed documentation forms following each case. This information was readily obtained by researchers from meeting attendance records. Finally, the school principal was asked to provide his or her assessment of how consistently the team followed the threat assessment model on a 5-point scale ranging from *never* to *always.* (Principals used the full range of this scale.) This information was used to construct a 5-item scale: (1) attendance at initial training (0 = *no one attended*, 1 = *one attended,* 2 = *two attended*, 3 = *three attended*, 4 = *four or more attended*); (2) held team meetings (0 = *no meetings*, 1 = *one*

meeting, 2 = *quarterly meetings*, and 4 = *more than 4 meetings*); (3) attended booster meeting (0 = *no*, 1 = *yes*); (4) completed documentation forms (0 = *no, 1 = yes*); and (5) reported use of the model (0 = *never*, 1 = *seldom*, 2 = *sometimes*, 3 = *often*, 4 = *always*). Each of the 5 items was converted to a *z* score and then all five were averaged into an overall Compliance score with an internal consistency (Cronbach's alpha) of .81.

Student outcomes. The prevention of violence is always a fundamental goal of threat assessment, but most threats are not carried out and severe acts of violence are so rare that it would require an extraordinarily large sample to assess intervention effects. In this study, too few students (7 in the sample of 201) were identified as carrying out their threat of violence to conduct meaningful analyses. The Virginia Guidelines were designed to achieve three goals beyond violence prevention that were evaluated in this study: (1) use of mental health counseling services to resolve conflicts; (2) involvement of parents in response to the threat; and (3) return of students to school without long-term suspension or alternative school placement.

School principals completed a standard documentation form for each case that included a description of the threat incident, identifying information regarding the student (not shared with researchers), and steps taken by the team in response to the threat. The form provided dichotomous (Yes/No) data for 5 outcomes, whether: (a) the student received a long-term suspension from school; (b) there was a conference with the student's parents; (c) the parents of the victim were notified; (d) the student was placed in an alternative setting; and (e) the student was provided with some form of school-based mental health counseling services. School-based mental health counseling services were broadly defined to include any mental health services deemed appropriate to the student's needs, such as supportive counseling, social skills training, or mediation of interpersonal conflicts.

Threat severity. The seriousness of the threat case was determined by the threat assessment team according to rules in the Virginia Guidelines. There were three levels of severity: (a) transient threats, (b) serious substantive threats, and (c) very serious substantive threats. This 3-point index was used as a control variable because disciplinary outcomes might differ as a function of case severity. A transient threat is one in which the student does not have a sustained intent to harm someone, and often involves an expression of anger, frustration, or even inappropriate humor. Substantive threats are ones in which there is a sustained intent to harm someone beyond the immediate incident. When it is not clear whether a threat is transient or substantive, the team considers the threat to be substantive. A substantive threat is then categorized as serious or very serious. A serious threat is a threat to assault, strike, or beat up someone. A very serious threat is a threat to kill, sexually assault, or severely injure someone. A threat involving the use of a weapon is generally considered a threat to severely injure someone, but teams must always use their judgment.

Procedures

Training. The principal from each intervention school selected a threat assessment team to attend a standard 1-day workshop on the threat assessment model. The resulting 59 participants included 21 principals and assistant principals, 2 school resource officers, 5 school psychologists, 20 school counselors, 7 school social workers, 1 teacher, and 3 other staff members. The workshop was conducted by the authors of the Virginia Student Threat Assessment Guidelines. The workshop explained the rationale and basic principles of threat assessment, then presented a step-by-step analysis of the decision-tree model and procedures used to determine the seriousness of a student threat and take appropriate action.

Decision tree. At Step 1, the team leader begins by interviewing the student who made the threat, using a standard set of questions. The focus of the interview is not the

verbal content of the threat, but its context—that is, what the student meant and intended in making the threat. The student's account is compared to what other witnesses report and how they experienced the threat.

At Step 2, the threat may be identified as transient, such as an expression of anger, frustration, or even inappropriate humor. The defining feature of a transient threat is that the student does not have a sustained intent to harm someone. In some cases, behavior that appears threatening to an observer might not constitute a threat when investigated and the school staff member would simply clarify the situation for all concerned parties.

At Step 3, transient threats are resolved when the student is able to offer an apology and explanation that makes amends for his or her behavior. In situations where there is an argument or conflict of some kind, the team may use available counseling resources to engage the student in a mediation or conflict resolution process. There may be a reprimand or other disciplinary consequence as well. Most threats are resolved at this step.

A threat that cannot be easily resolved as a transient threat is regarded as a *substantive* threat, which means that there is a sustained intent to harm someone beyond the immediate incident. When it is not clear whether a threat is transient or substantive, the team considers the threat to be substantive. Some presumptive, but not necessary or sufficient, indicators that a threat is substantive, include the specificity and plausibility of the threat, whether there has been planning or preparation to carry out the threat, and whether there is physical evidence of intent such as a weapon or written plan. In each case, the team must consider the total circumstances of the threat and make reasoned judgments based on all the available information, such as the student's age and capabilities, mental state, and prior history of aggression.

At Step 4, a substantive threat is classified as *serious* or *very serious*, a distinction based on the intended severity of injury. A *serious* threat is a threat to assault, strike, or beat up someone. A *very serious* threat is a threat to kill, sexually assault, or severely injure someone. A threat involving the use of a weapon is generally considered a threat to severely injure someone, but teams must always use their judgment. For example, if a student threatens to shoot someone with a water pistol, it would not make sense to treat such a threat as very serious and it may be no more than a transient threat.

At Step 5, the team responds to a serious substantive threat by taking protective actions to prevent the threat from being carried out. Immediate protective actions include cautioning the student about the consequences of carrying out the threat, providing supervision so that the threat is not carried out at school, and contacting the student's parents (or adult caretakers) so that they can assume responsibility after school. A team member should also meet with the intended victim(s) of the threat, both in an effort to resolve the underlying dispute or problem and to warn the individual(s). If the intended victim is a student, that student's parents should be contacted as well. Serious substantive threats are resolved at this step.

In the case of very serious substantive threats, the team takes more extensive action at Steps 6 and 7. The school psychologist should undertake a mental health evaluation with the initial goal of assessing the student's mental state and need for immediate mental health services, and then a secondary goal of recommending strategies addressing the problem or conflict underlying the threat. Although the use of long-term suspension is discouraged because its association with negative student outcomes (Bowditch, 1993; Skiba & Sprague, 2008), a short-term suspension is appropriate until the team can complete its safety evaluation. The school resource officer must determine whether law enforcement action should be taken.

At Step 7, the team integrates findings into a written safety plan. The plan may include mental health and counseling recommendations, findings from the law enforcement investigation, and disciplinary consequences. The safety plan is designed both to protect potential victims and to address the educational needs of the student who made the threat.

The threat assessment teams in each

school were provided with a manual (Cornell & Sheras, 2006) that explains the rationale and purpose of threat assessment, the roles of each team member, and the decision tree. There is also information about mental health assessments of threatening students, answers to frequently asked questions about legal, ethical, and practical issues, the integration of threat assessment into a comprehensive school-wide approach to violence prevention, the selection of interventions for students receiving special education services, and case exercises that can be used to test team members' knowledge of the guidelines.

Results

Evaluation of Workshop Training

A multivariate repeated measures ANOVA compared pretest and post-test scores on the 15 items measuring knowledge of threat assessment gained in the staff workshop. The multivariate test was statistically significant, Wilks's $\Lambda = 0.10$, $F(15, 31) = 17.95$, $p < .001$, and accompanied by a large effect size ($\eta^2 = 0.90$). Table 1 presents univariate tests for the pre- and post-test score differences for each of the 15 items, with all changes were in the expected direction. There was a statistically significant change ($p < .01$) from pretraining to post-training for all but 2 items (Items 11 and 12 in Table 1), with effect sizes ranging from small (e.g., −0.26) to very large (e.g., 1.58). Notably, participants showed a large decline in support for zero tolerance (effect size in the form of standardized mean difference $d = 1.14$) and less inclination to use suspension as a response to student threats ($d = 0.63$).

Evaluation of Treatment Effects

Because all 5 outcome variables were dichotomous, logistic regression analysis was the appropriate statistical method to test study hypotheses. In this sample, the 201 students were nested in 40 schools, but there were too few students per school (3 to 6 cases per school for most schools) to conduct a multilevel logistic regression analysis because the small Level 1 sample size would generate severe biases in variance and covariance components estimation (Shih & Fan, 2009). However, we assessed the potential effect of the nested data structure on Type I error by estimating the intraclass correlation of the outcome variables (Ridout, Demetrio, & Firth, 1990); coefficients ranged from 0.04 to 0.07 and therefore were deemed unlikely to cause serious inflation of the Type I error rate. Based on these considerations, we proceeded with two logistic regression analysis models for each outcome variable. The first model simultaneously entered the demographic variables (student gender, school level, and race) and threat severity. The second, full model added the intervention condition (intervention vs. control). In Table 2, the odds ratios (OR) associated with the model predictors were from the full model, but the ΔR^2 measure for the unique contribution of intervention/control condition was derived from a comparison of the two models.

Data presented in Table 2 support the main study hypotheses. The logistic regression model for the outcome measures had reasonably good model fit, with Negelkerke pseudo-R^2 being above 0.30 for three outcome variables (long-term suspension, parent notified, and alternative placement) and around 0.20 for the remaining two outcomes (parent conference, mental health counseling services provided). Specifically, compared with the students ($n = 101$) in the control schools, the students ($n = 100$) in the schools using threat assessment were considerably more likely to receive mental health counseling services (OR = 3.98, or close to four times as likely) and a parent conference (OR = 2.57), but less likely to receive long-term suspension (OR = 0.35, or about one third as likely) or an alternative school placement (OR = 0.13, or about one eighth as likely). There was no statistically significant effect for notification of the victim's parents, but the nonsignificant effect of treatment was in the expected direction. These differences between the treatment and control school students could not be attributed to student gender or race, school level, or threat severity, which

Table 1
Pre-Post Changes in Fifteen Training Survey Items

Training Survey Items (Direction for Correct Answer)	Pre Training Mean	Post Training Mean	$t_{(df)}$[1]	Effect Size[2]
1. Violence in schools has increased over the past ten (10) years. (Disagree)	3.87	1.52	$11.70_{(54)}$	1.58
2. A safety plan should be implemented for a transient threat. (Disagree)	4.17	2.48	$8.44_{(52)}$	1.16
3. If a student threatens an act of violence, immediate suspension is necessary. (Disagree)	3.02	2.07	$4.60_{(52)}$	0.63
4. When conducting an interview with a student about an alleged threat, the student should be reassured that the interview is confidential. (Disagree)	2.70	1.54	$5.79_{(53)}$	0.79
5. An angry student who says "I could kill him for that" should always be regarded as making a substantive threat. (Disagree)	3.22	2.30	$4.90_{(53)}$	0.67
6. Students receiving special education services usually cannot be suspended following a threat assessment. (Disagree)	1.63	1.17	$2.83_{(53)}$	0.38
7. Mental health threat assessments are designed to predict violence. (Disagree)	2.41	1.67	$3.51_{(53)}$	0.48
8. Profiling is an effective method to identify students who may commit violent acts. (Disagree)	2.54	1.41	$6.92_{(51)}$	0.96
9. The probability that a student will kill someone at school is so low that the average school will experience it about once every 12,000 years. (Agree)	2.61	4.57	$-9.34_{(53)}$	−1.27
10. A student who writes an essay describing a violent event should be given a threat assessment. (Disagree)	3.20	2.37	$4.92_{(53)}$	0.67
11. A student who tells friends that he will beat up someone in the parking lot after school today is most likely making a transient threat. (Disagree)	2.87	2.30	$2.46_{(53)}{}^{+}$	0.33
12. The typical school violence prevention program can reduce fighting by 50%. (Agree)	3.85	4.24	$-1.92_{(52)}{}^{+}$	−0.26
13. I am concerned that a homicide could occur in my school. (Disagree)	2.43	1.50	$4.04_{(54)}$	0.54
14. We need zero tolerance for student threats of violence in my school. (Disagree)	3.70	2.04	$8.37_{(53)}$	1.14
15. Until the law can be changed, federal law (FERPA) prevents school officials from notifying parents the name of the student who has threatened their child. (Disagree)	2.07	1.28	$5.26_{(53)}$	0.62

Note. N = 46 cases with complete data. Items were answered on a four-point scale where 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*. The desired response is indicated after each item in parentheses. The fifteen items were first analyzed in a multivariate repeated measures analysis: Wilks' Lambda = .10, F (15, 31) = 17.95, $p < .001$, eta-squared = .90. In follow-up to the multivariate test, fifteen univariate dependent sample *t* test values are reported here.

[1] All *t*-tests have $p < .01$, except #11 and #12 as indicated by '+'.

[2] Effect size is based on standardized mean difference scores between pre- and post-scores on each item ($D = \bar{X}_{pre} - \bar{X}_{post}$), and is computed as: $d = D/std_D$, where std_D is the standard deviation of the difference scores *D*.

Table 2
Odds Ratios (OR) from Logistic Regression Showing Treatment Effects for Five Outcome Measures

Predictors	Outcome Measures				
	Long-Term Suspension	Parent Conference	Victim's Parent Notified	Alternative Placement	Counseling Provided
School Type					
Middle vs. Elementary	6.16*	.38	.45	2.62	.33*
High vs. Elementary	7.34*	.17*	.40	5.34	1.01
Threat Severity	1.19	1.20	1.22	3.23*	.68
Gender (M vs. F)	1.70	0.80	3.98*	3.31	1.25
Race (Minority vs. White)	1.90	.88	8.85*	.75	1.45
Intervention vs. Control	.35*	2.57*	1.57	.13*	3.98*
[a]Total R^2	.30	.19	.32	.38	0.21
Intervention ΔR^2	.06	.05	.01	.11	0.12

Note. [a] These are "pseudo-R^2" in the form of Nagelkerke R^2 in logistic regression analysis.
* Statistically significant at $\alpha = .01$.

were statistically controlled in the logistic regression analysis. The effect sizes for the unique contribution of the intervention in the form of ΔR^2 ranged from small ($\Delta R^2 = 0.05$) to medium ($\Delta R^2 = 0.12$).

To assist in interpretation of the odds ratios, the percentages of each outcome were determined for each group. These raw percentages do not take into consideration the additional variables controlled in the logistic regressions. For students attending intervention versus control schools, the breakdown was as follows: long-term suspensions, 25% (intervention) versus 49% (control); parent conference, 75% versus 55%; victim's parent notified, 79% versus 81%; alternative school placement, 4% versus 20%; and counseling provided, 56% versus 25%.

Evaluation of the Effect of Implementation Compliance

We hypothesized that schools with higher compliance scores would have more desirable outcomes than those with lower compliance scores. Because compliance scores were only relevant for schools using the Virginia Guidelines, the analyses only involved the 100 students in the intervention schools, and as a result of the smaller sample size, statistical power was reduced. Nevertheless, Table 3 shows that, for the five outcome variables, implementation compliance had a statistically significant effect on long-term suspensions (OR = 0.73) and mental health counseling services (OR = 1.24), after controlling for the student demographics (gender and race), school type, and threat severity. In addition to the findings related to compliance scores, there were two other notable findings. Among those in the intervention schools, male students were more likely to receive long-term suspension (OR = 4.61) after controlling for threat severity. If a threat was considered more serious, it was more likely that the victim's parent would be notified (OR = 6.52).

Discussion

Threat assessment has direct implications for school psychology practice. Students who make threats of violence pose a serious concern to schools. Nevertheless, most student threats do not lead to violence and there is

Table 3
Odds Ratios (OR) from Logistic Regression Showing Effect of Compliance on Five Outcome Measures

	Outcomes				
Predictors	Long-Term Suspension	Parent Conference	Victim's Parent Notified	Alternative Placement	Counseling Provided
School Type					
Middle vs. Elementary	1.97	.20	1.00	1.00	2.24
High vs. Elementary	4.35	.26	1.00	2.51	1.70
Threat Severity	1.29	1.44	6.52	1.85	.99
Gender (M vs. F)	4.61	1.75	4.71	1.25	1.93
Race (Minority vs. White)	2.04	.77	2.84	1.01	2.59
Compliance Score	.73∗	1.07	.84	1.16	1.24∗
[a]Total R^2	.32	.17	.65	.40	.185
Intervention ΔR^2	.10	.01	.01	.01	.07

Note. [a] These are "pseudo-R^2" in the form of Nagelkerke R^2 in logistic regression analysis.
∗ Statistically significant at $\alpha = .01$.

great potential for school authorities to overreact to student misbehavior (Cornell & Nekvasil, in press). School administrators in many schools often respond with a zero tolerance discipline approach that results in immediate suspension without consideration of the circumstances of the student's behavior (Skiba & Sprague, 2008). Before the student returns to school, the school psychologist may be asked to evaluate the student and offer an assessment of potential danger, which is an inherently difficult and scientifically questionable task (Borum et al., 2010).

In contrast, the Virginia Student Threat Assessment Guidelines provides schools with a team-oriented approach. The team has guidelines for assessing the context and meaning of the student's behavior and taking action calibrated to the seriousness of the threat. A threat assessment approach is fundamentally a risk management approach focused on resolving threats and preventing violence, as distinguished from a more traditional risk assessment designed to make a prediction of violence (Heilbrun, 1997). Moreover, threat assessment is consistent with the School Wide Positive Behavior Support model (Sugai & Horner, 2006) and with current trends in school psychology services. Threat assessment allows schools to identify problem situations and assess the need for positive behavior support interventions rather than rely on reactive disciplinary practices (Horner, Sugai, Todd, & Lewis-Palmer, 2005, Mayer, 1995).

School authorities in schools that used the Virginia Threat Assessment Guidelines were much less likely to use long-term suspensions (OR = 0.35) or transfer the student to an alternative school placement (OR = 0.13), but they were much more likely hold a parent conference (OR = 2.57) and to use mental health counseling services (OR = 3.98) than school authorities in the control schools. These findings indicate a clear shift toward a less punitive approach to student threats.

A decrease in long-term suspensions is an important outcome because the practice of suspension has been repeatedly criticized as ineffective and even counterproductive to the goals of improving student behavior and maintaining an orderly school environment (Civil Rights Project, 2000; Skiba & Sprague, 2008). The greater use of mental health services in

response to student threats in the intervention schools is also important because it represents an effort to solve the underlying problem or conflict that stimulated the threat. This study did not examine the kinds of mental health services provided to students, but a wide variety of approaches have been found to be effective in reducing and preventing aggressive behavior in school (Wilson & Lipsey, 2007). A next step in threat assessment research is to examine student aggression more closely during a follow-up period and to identify specific strategies for resolving threats and preventing aggressive behavior.

Fidelity of implementation is a critical issue in any intervention study, especially in a complex setting such as a school (Dusenbury, Brannigan, Falco, & Hansen, 2003). Schools frequently adopt programs, but then fail to adhere to their requirements (Hallfors & Godette, 2007). Often, school authorities have established ways of dealing with student misbehavior that may not be consistent with threat assessment guidelines and there may be resistance to following new procedures. It is essential that the central administration for a school system provide support and encouragement for school administrators to follow a new model.

There are some particular challenges to evaluating the implementation of a threat assessment model. Threat assessment is not a specific curriculum or prescriptive set of procedures, but a set of guidelines to assist a team in its decision-making process. Moreover, threat assessment is not a routine activity, but an infrequent event that can occur unexpectedly at any time during the school year. In this study, the workshop evaluation results indicated that team members gained knowledge of threat assessment principles and expressed a willingness to move away from a zero tolerance approach. This suggested that the schools successfully took the first step toward implementation compliance. The workshop was designed to remove the common misconception that school violence has been increasing in the past 10 years and give participants an understanding of the extremely low probability of a student homicide. This information was deemed important in helping reduce anxiety about student violence that can lead school authorities to overreact to student threats. The participants also displayed an understanding of the kinds of circumstances in which a mental health assessment of a student is needed, and they recognized that psychological profiling is not an appropriate strategy. Overall, the knowledge gained in the workshop was intended to help school authorities adopt a problem-solving attitude and approach to student threats rather than rely on an inflexible zero tolerance approach.

The infrequency of threat cases and the need to maintain student confidentiality made it impractical to observe a team in action. Thus, compliance with model procedures appears to be an area in need of future research. Perhaps the best indicator that the Compliance Score was a useful measure of fidelity is that it predicted the two primary student outcomes, long-term suspensions (OR = 0.73) and counseling services (OR = 1.24), after controlling for the student demographics (gender and race), school type, and threat severity. These findings underscore the importance of compliance in achieving positive outcomes. With greater compliance, it is likely that the group differences obtained in this study would have been even stronger.

Potential Theoretical Perspectives

Authoritative discipline theory (Gregory & Cornell, 2009) provides a useful framework for conceptualizing threat assessment as a violence prevention strategy. According to this theory, school discipline should reflect the characteristics of good parenting identified by Baumrind (1968), who found that effective parents displayed a combination of both high expectations for their children's behavior and warm support, which she described as "authoritative" parenting. Similarly, schools should be most effective when they have a combination of both high, but fair, disciplinary expectations and a supportive relationship with students. Moreover, schools characterized as authoritative had less truancy and fewer dropouts than schools characterized as

indifferent (Pellerin, 2005), and authoritative high schools had less bullying and student victimization (Gregory et al., 2010).

Threat assessment represents an authoritative perspective that contrasts with the authoritarian approach of zero tolerance discipline. Whereas a zero tolerance approach imposes harsh disciplinary consequences without consideration of the context of the student's behavior, threat assessment teams consider the circumstances and meaning of the student's behavior and seek ways to resolve conflicts and address the student's emotional needs and concerns. Although students receive disciplinary consequences for their threatening behavior, it is calibrated to the seriousness of the threat.

Limitations and Directions for Future Research

Replications of these findings are needed in a variety of schools and student populations. The effects of threat assessment on individual students were measured with general outcomes, such as the use of parent meetings and counseling services, but more specific information about the kinds of services is needed. Research on student outcomes using measures of academic and behavioral adjustment is also desirable. It should be noted that threat assessments are relatively infrequent events and can range widely in severity from simple cases that are quickly resolved to those that may require a comprehensive intervention plan and long-term follow-up. For these reasons, it would be necessary to study a large sample of schools over an extended period of time to accumulate enough cases to demonstrate a school-wide effect. It would be useful to obtain parental permission to collect data from students and parents to obtain more information about the effect on students, although this would be a formidable task.

There are several avenues for additional research. First, it would be useful to know more about the nature and prevalence of student threats of violence. There is little information on why students make threats or how threats are resolved when school authorities are not involved (Cornell & Nekvasil, in press). Research is needed on the most effective method to deliver mental health interventions for students who have made a threat.

A second line of research would consider the victim's perspective. How do students evaluate threats and when do they decide to seek help for a threat? What is the role of bullying in these cases? Are there school climate conditions that facilitate student willingness to seek help for threats of violence? There is evidence that students are more willing to seek help in schools where students perceive their teachers and other school staff to be supportive and genuinely concerned about problems such as bullying (Eliot, Cornell, Gregory, & Fan, 2010).

A third line of research would examine the implementation of threat assessment procedures in schools. What is the best way to train staff and implement this new approach, and how can we monitor and encourage compliance? What are the most effective ways to involve school psychologists in conducting threat assessments, educating staff about the threat assessment approach, and monitoring compliance with the model? How long after implementation does it take for a threat assessment approach to begin to influence attitudes and behavior among the larger school staff and student body? It would also be possible to assess the broader effect of threat assessment on aspects of school climate and disciplinary outcomes such as victimization rates in a larger sample of schools, studied over a longer period of time. Although two studies have found evidence that threat assessment has a broader effect on school climate and disciplinary outcomes (Cornell et al., 2011; Cornell et al., 2009), controlled longitudinal studies are needed.

In summary, these results support the conclusion that use of the Virginia Student Threat Assessment Guidelines is an effective method of responding to student threats of violence. Although more studies are needed, there is accumulating evidence that the Virginia Guidelines have beneficial consequences for school safety conditions. The present study found that schools using the

Virginia Guidelines were less likely to use long-term suspension and alternative school placement, and more likely to use mental health services and parent meetings to resolve threats before they escalate into more serious acts of violence. Threat assessment offers schools a seemingly safe and effective alternative to zero tolerance disciplinary practices for threats of violence.

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Date received: April 18, 2011
Date accepted: November 22, 2011
Action editor: Robert Volpe ■

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School Psychology Quarterly
2009, Vol. 24, No. 2, 119–129

1045-3830/09/$12.00 DOI: 10.1037/a0016182

A Retrospective Study of School Safety Conditions in High Schools Using the Virginia Threat Assessment Guidelines Versus Alternative Approaches

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Threat assessment has been widely recommended as a violence prevention approach for schools, but there are few empirical studies of its use. This nonexperimental study of 280 Virginia public high schools compared 95 high schools using the Virginia threat assessment guidelines (Cornell & Sheras, 2006), 131 following other (i.e., locally developed) threat assessment procedures, and 54 not using a threat assessment approach. A survey of 9th grade students in each school obtained measures of student victimization, willingness to seek help for bullying and threats of violence, and perceptions of the school climate as caring and supportive. Students in schools using the Virginia threat assessment guidelines reported less bullying, greater willingness to seek help, and more positive perceptions of the school climate than students in either of the other 2 groups of schools. In addition, schools using the Virginia guidelines had fewer long-term suspensions than schools using other threat assessment approaches. These group differences could not be attributed to school size, minority composition or socioeconomic status of the student body, neighborhood violent crime, or the extent of security measures in the schools. Implications for threat assessment practice and research are discussed.

Keywords: Student threat assessment, school violence, school safety, violence prevention

Since the 1999 shootings at Columbine High School, school administrators have been under pressure to assure the public that schools are safe and secure (Cornell, 2006). The shootings in 2005 at Red Lake High School in Minnesota, in 2006 at the Amish school in Pennsylvania, and in 2007 at Virginia Tech received worldwide attention and have kept the issue of school safety in the foreground of national concerns. The purpose of this study was to examine school climate conditions in a group of Virginia high schools that elected to implement a student threat assessment program designed to prevent acts of violence. This investigation was undertaken after a statewide survey indicated that 95 high schools had adopted the threat assessment guidelines developed by the University of Virginia (Cornell & Sheras, 2006), 54 indicated that they had no formal process, and 131 indicated that they had some other model. These three groups of schools were compared on existing sources of information regarding student perceptions of school climate and levels of bullying, as well as school records of disciplinary infractions for aggressive behavior.

Both FBI (O'Toole, 2000) and U.S. Secret Service (Vossekuil, Fein, Reddy, Borum, &

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We thank Donna Bowman of the Virginia Department of Criminal Justice Services and Arlene Cundiff of the Virginia Department of Education, and their colleagues, for their support of the Virginia High School Safety Study. We also thank our research assistants Sharmila Bandyopadhyay, Justin Collman, Megan Eliot, Francis Huang, Jennifer Klein, Talisha Lee, Erica Shirley, Aisha Thompson, and Farah Williams. We thank Chris Gist for development of the GIS map that permitted us to align law enforcement crime data with school districts. We thank James Conklin for acquiring crime data from Virginia law enforcement agencies and compiling the crime database. This project was supported in part by a grant from the Office of Juvenile Justice and Delinquency Prevention of the U.S. Department of Justice, but the views in this article do not necessarily reflect policies or recommendations of the funding agency.

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Modzeleski, 2002) studies remarked on the diverse backgrounds and circumstances of students who engaged in acts of targeted violence, and identified some general characteristics seen in many, but not all, of the student perpetrators. Many of the students were victims of bullying who had become angry and depressed, had family relationship problems, and were negatively influenced by peers. Over half displayed a preoccupation with violence through movies or video games. Both law enforcement agencies concluded that, because these characteristics can be found in so many students, it is not possible to develop a profile or checklist that could be used to pinpoint the small number of truly violent students among them. Any checklist of warning signs would falsely identify many students who were not dangerous.

Nevertheless, the FBI and Secret Service emphasized that almost all of these students communicated their intentions to attack through threats and warnings. In most cases, the threats were not communicated directly to the intended victims but to third parties such as their peers. Had these threats been reported to authorities and investigated, the shootings might have been prevented; the FBI identified a series of potential school shootings that were prevented because students reported a threat to authorities that was investigated and determined to be serious (O'Toole, 2000). On the basis of these observations, both the FBI and the Secret Service, in collaboration with the Department of Education, recommended that schools adopt a *threat assessment* approach to prevent targeted acts of violence (Fein et al., 2002; O'Toole, 2000). Similar recommendations were made for institutions of higher education following the Virginia Tech shootings (United States Department of Health and Human Services, 2007; Virginia Tech Review Panel, 2007).

What is threat assessment? Threat assessment is widely used by the Secret Service to deal with persons who threaten to attack public officials, and has evolved into a standard law enforcement approach to analyze a variety of dangerous situations, such as threats of workplace violence. Threat assessment is a process of evaluating a threat, and the circumstances surrounding the threat, to uncover any facts or evidence that indicate that the threat is likely to be carried out. Student threat assessment can be distinguished from profiling in part because the investigation is triggered by the student's own threatening behavior rather than some broader combination of student characteristics.

Threat assessment is ultimately concerned with whether a student *poses* a threat, not whether he or she has *made* a threat (O'Toole, 2000; Randazzo et al., 2006). Any student can make a threat, but relatively few will engage in the planning and preparation necessary to carry out the threat. Threat assessment is concerned with determining whether a student has the intent and means to carry out the threat and includes efforts to prevent the threat from being carried out. Prevention efforts range from immediate security measures, such as notifying law enforcement and warning potential victims, to the development of an intervention plan designed to resolve the conflict or problem that precipitated the threat.

Although both the FBI and Secret Service reports (Fein et al., 2002; O'Toole, 2000) made a compelling case for student threat assessment, schools had no experience with this approach, and there were many questions concerning the practical procedures that should be followed. In response, researchers at the University of Virginia developed a set of guidelines for school administrators to use in responding to a reported student threat of violence. Threat assessment teams are trained in a 6-hr workshop that prepares them to use a 145-page threat assessment manual (Cornell & Sheras, 2006).

The Virginia model of threat assessment is an approach to violence prevention that emphasizes early attention to problems such as bullying, teasing, and other forms of student conflict before they escalate into violent behavior. School staff members are encouraged to adopt a flexible, problem-solving approach, as distinguished from a more punitive, zero-tolerance approach to student misbehavior. As a result of this training, the model is intended to generate broader changes in the nature of staff–student interactions around disciplinary matters and to encourage a more positive school climate in which students feel treated with fairness and respect.

A study of 351 school staff members who completed the Virginia workshop found that participants became less anxious about the possibility of a school homicide, more willing to use threat assessment methods to help students resolve conflicts, and less inclined to use a

zero-tolerance approach (Allen, Cornell, Lorek, & Sheras, 2008). Similar effects were found for principals, psychologists, counselors, social workers, and law enforcement officers.

The Virginia guidelines include a seven-step decision tree. In brief, the first three steps constitute a triage process in which the team leader (most often a school administrator such as the principal or assistant principal) investigates a reported threat and determines whether the threat can be readily resolved as a *transient* threat that is not a serious threat. Examples of transient threats are jokes or statements made in anger that are expressions of feeling or figures of speech rather than expressions of a genuine intent to harm someone.

Any threat that cannot be clearly identified and resolved as transient is treated as a *substantive* threat. Substantive threats always require protective action to prevent the threat from being carried out. The remaining four steps guide the team through more extensive assessment and response based on the seriousness of the threat. In the most serious cases, the team conducts a safety evaluation that includes both a law enforcement investigation and a mental health assessment of the student. The culmination of the threat assessment is the development of a safety plan that is designed to address the problem or conflict underlying the threat and prevent the act of violence from taking place. For both transient and substantive threats, there is an emphasis on helping students resolve conflicts and minimizing the use of zero-tolerance suspensions as a disciplinary response.

The Virginia threat assessment guidelines were field tested in 35 public schools, encompassing an enrollment of more than 16,000 students in Grades K–12 (Cornell et al., 2004). School-based teams evaluated 188 student threats that involved threats to hit, stab, shoot, or harm someone in some other way. Most of the threats (70%) were resolved as transient threats, and the remaining 30% were substantive threats that required more extensive assessment and protective action. The threat assessment teams placed special emphasis on understanding the context and meaning of the threat and developing a plan to address the underlying conflict or problem that stimulated the student to resort to threatening behavior. Use of this problem-solving approach meant that relatively few students received long-term suspensions or expulsions from school. Only 3 students were expelled from school, although half of the students ($n = 94$) received short-term suspensions (typically 1–3 days). Notably, follow-up interviews with the school principals found no cases in which the threats were carried out.

A second study examined the Virginia threat assessment model when used by a centralized team responding to 209 serious threat cases in Memphis City Schools (Strong & Cornell, 2008). There were 60 (29%) threats to hit or beat up someone, 48 (23%) threats to cut or stab, 32 (15%) threats to shoot, 30 (14%) threats to kill, 14 (7%) sexual threats, and 25 (12%) other threats (such as to blow up or burn down the school). This study found that all of the student threats were resolved without any detected act of violence. Almost all students were able to return to their school or an alternative school placement, with only five students receiving long-term suspensions without school services. Plans to assist each student included modifications to special education plans, the provision of academic and behavioral support services, and referrals to community-based mental health services. After the threat assessment, the number of disciplinary office referrals for these students declined by approximately 55% through the remainder of the school year.

The most notable limitation to previous studies of the Virginia threat assessment model is the absence of a comparison group. To address this need, the present study examined the use of the Virginia threat assessment model in the statewide population of Virginia high schools. The 95 high schools using the Virginia model were compared with 131 schools using a locally developed threat assessment model and 54 schools not using a threat assessment approach. This was a retrospective comparison conducted after the school principals had responded to a question on an annual school safety audit survey about their approach to threat assessment.

We expected that schools using the Virginia model of threat assessment would create a more positive and supportive school climate that encouraged students to come forward to obtain help in response to bullying and threats of violence, and that this in turn would give staff more opportunities to prevent or reduce student bullying and other forms of victimization. We expected that schools using the Virginia model to resolve student conflicts would be less likely to

use school exclusion as a response to disciplinary infractions.

Data on student victimization and perceptions of school climate were available from the Virginia High School Safety Study (Cornell & Gregory, 2008), a statewide examination of school climate and safety conditions in Virginia public high schools using data collected from school principals, students, teachers, and school records. The purpose of the study was to identify school safety practices that were associated with more positive school climates and lower levels of crime and violence. Most relevant to the present study, the Virginia High School Safety Study included a statewide survey of ninth grade students. Ninth grade students were surveyed because the first year of high school is considered a pivotal year for student adjustment and achievement (Donegan, 2008), ninth grade students in Virginia have an especially high rate of discipline violations (Virginia Department of Education, 2007), and nationally, ninth grade students experience a high rate of bully victimization (Nansel et al., 2001), probably because they are youngest students in the school. This study did not collect case data on student threats, so schools were compared on the basis of more general outcomes that could be expected from the adoption of a threat assessment approach.

Consequently, we hypothesized that schools using the Virginia model would have lower rates of long-term suspensions and fewer disciplinary violations involving aggressive behavior. We further hypothesized that there would be less student bullying and victimization, and that students would have a positive view of the school climate if the school adopted a problem-solving approach, rather than the more punitive, zero-tolerance approach that is widely adopted in Virginia schools. Finally, we hypothesized that students would be more willing to seek help from school staff for bullying and other threats of violence, and that they would have a more positive perception of school staff as treating them with fairness and respect.

Method

Participants

Schools

All 314 Virginia high schools were eligible for inclusion in the Virginia High School Safety Study, which was the source of data for this report. Virginia law requires every public school principal to complete an annual online school safety audit. The principal survey for the 2006–2007 school year asked whether they used "a formal threat assessment process to respond to student threats of violence." In response, 95 principals checked the answer "Yes, we follow the guidelines developed by the University of Virginia (UVA)," 54 indicated that they had no formal process, and 131 indicated that they had some other process. In response to a follow-up question about the source of their guidelines, these principals wrote that they were developed by some combination of in-house administrative staff (52 schools), by district-level staff (48 schools), or a combination of school staff and local professionals in law enforcement or mental health (6 schools). Two principals reported that they did not know the source of their guidelines, 1 school reported use of a private consultant, and 1 reported that they used state department of education guidelines (although such guidelines do not exist). The remaining 34 schools did not provide a response and could not be included in the study.

The 280 participating schools ranged in size from 33 to 2,881 students, with an average of 1,199 students. All 280 schools participated in the Virginia High School Safety Study (described below). There were 50 urban, 110 suburban, and 120 rural schools. The percentage of minority students in the schools ranged from 0% to 100%, with an average of 34% (SD = 26). The percentage of students eligible for reduced price meals ranged from 0% to 100%, with an average of 31% (SD = 16). The number of school resource officers at the schools ranged from none to three, including 36 schools with no officer, 232 with one officer, 10 with two officers, and 2 with three officers.

Students

As part of the Virginia High School Safety Study (Cornell & Gregory, 2008), school principals selected approximately 25 ninth grade students per school by matching a series of random numbers to alphabetized student rolls. (Schools with fewer than 25 ninth grade students selected all available ninth grade students.) Principals were instructed to send a standard letter to parents explaining that their son or

daughter had been chosen to complete an anonymous online survey as part of the state's school safety audit program and advising them to contact the school if they did not wish their child to participate. Students who were unwilling or unavailable to complete the survey were replaced with the next available student on the list.

Principals reported that approximately 27% of the students initially identified by the sampling procedure did not participate in the study. The reasons for nonparticipation included student declined to participate (16% of those who did not participate), parent declined (6%), student absent due to illness (32%), student suspended from school (5%), student moved or transferred (7%), student language barrier (3%), or some other reason (this could range from a severe disability to attending a field trip; 30%).

The student participants consisted of 7,318 ninth grade students (49% female) with an average age of 14.8 years and a range of 12 to 17 years (87% were ages 14 or 15). The self-reported racial/ethnic distribution of the sample was 63% White/Caucasian, 23% Black/African American, 5% Latino/Hispanic, 3% Asian American, 1% American Indian, and 5% other.

Measures

Disciplinary Records

High school principals in Virginia report student suspensions and other disciplinary actions to the Virginia Department of Education using a standard set of reporting conventions and 113 categories of disciplinary infractions. State records for the 2006–2007 school year provided the number of long-term suspensions (>5 days) and short-term suspensions (<5 days) for each high school. The category of long-term suspensions also included expulsions because there were too few expulsions ($Mdn = 0$) to justify separate analyses. In addition, the numbers of disciplinary referrals for aggressive behavior (all forms of assault and physical altercation, fighting, bullying, possession of a weapon) were summed into a total score. On the school safety audit survey, school principals reported the number of school resource officers employed at the school on a daily basis.

Neighborhood Violent Crime

To measure the extent of violent crime in the neighborhoods comprising the high school attendance zones, we mapped annual records obtained from the Virginia Department of State Police and local law enforcement agencies onto school attendance zones. The total numbers of violent crimes using standard FBI definitions of violent crime were identified. Crimes occurring at school were not included in the count.

Student Survey

Ninth grade students completed a school climate survey as part of the Virginia High School Safety Study in the spring of 2007. The survey was completed anonymously online at computer stations in classrooms. Student responses at each school were aggregated into school-level scores.

Student perceptions of school security were measured by a nine-item Security Measures Index derived from the School Crime Supplement to the National Crime Victimization Survey (National Center for Education Statistics, 2005). Students were asked whether their school had each of nine security measures in place (responding *yes*, *no*, *don't know*), such as "security guards or assigned police officers," "metal detectors," and "one or more security cameras to monitor the school." The average number of security measures identified by the students at each school was used as an index of school security efforts.

The survey included a Victimization Index from the Effective School Battery (Gottfredson, 1999). Students were asked (true or false) whether each of seven forms of criminal victimization had happened to them in school. Items ranged from theft of personal property to being physically attacked. Internal consistency (Cronbach's alpha) of this index was .68 in the sample for the Virginia High School Safety Study.

Two measures of bullying were included in the high school survey. Both measures were taken from the School Climate Bullying Survey (Cornell & Sheras, 2003) and have been used in other studies of bullying (Branson & Cornell, in press; Cornell & Brockenbrough, 2004; Thunfors & Cornell, 2008; Williams & Cornell, 2006). The Bullying Climate Scale consisted of

seven items describing the extent of teasing and bullying that students observed taking place at school. Students were asked how much they agree (*strongly disagree, disagree, agree*, or *strongly agree*) with statements such as, "Students here often get teased about their clothing or physical appearance," and "Bullying is a problem at this school." The scale had an internal consistency of .68 in this study. This level of internal consistency is acceptable for sets of items that can be regarded as an index of behaviors rather than a homogeneous scale (Streiner, 2003).

The Bullying Victimization Index consisted of four questions asking students whether they had been victims of bullying, physical bullying, verbal bullying, or social bullying in the past month. Students were given a standard definition of bullying: "Bullying is defined as the use of one's strength or status to injure, threaten, or embarrass another person. Bullying can be physical, verbal, or social. It is not bullying when two students of about the same strength argue or fight." There were four response categories (*never, once or twice, about once per week*, and *several times per week*). Internal consistency was .82.

The Help-Seeking Scale is an eight-item scale from the School Climate Bullying Survey (Cornell & Sheras, 2003) that was designed to measure student willingness to seek help from school staff members for bullying and threats of violence. The scale has been used in previous research on student willingness to seek help (Bandyopadhyay, Cornell, & Konold, 2008; Williams & Cornell, 2006) and asked students to agree (*strongly disagree, disagree, agree,* or *strongly agree*) with statements such as, "If another student was bullying me, I would tell one of the teachers or staff at school," and "If another student talked about killing someone, I would tell one of the teachers or staff at school." Internal consistency was .78.

To measure perceptions of school staff as treating them with fairness and respect, students completed the Learning Environment Scale from the California Healthy Kids Survey (Austin & Duerr, 2005). The scale consisted of eight items asking students how much they agree (*strongly disagree, disagree, agree, strongly agree*) that the adults in their school "really care about all students," "treat all students fairly" and show respect and support for students in other ways. Internal consistency was .92.

Results

Table 1 presents descriptive statistics for six school demographic characteristics identified as potential confounding variables in our comparison of three groups of schools: total enrollment, proportion of minority students, proportion of students eligible for reduced price meals, annual number of neighborhood violent crimes, number of school resource officers employed at the school, and student perceptions of school security.

Study hypotheses were tested with multivariate analysis of covariance (MANCOVA) that controlled for the six demographic variables and compared the three groups of schools on eight outcome variables: victimization, bullying victimization, bullying climate, help seeking, learning environment, short-term suspensions, long-term suspensions, and aggressive discipline violations. The test for overall group differences was statistically significant, Wilks's $\Lambda = .85$, $F(16, 528) = 2.83$, $p < .001$. As

Table 1
Descriptive Statistics for Demographic and School Security Measures

	Virginia model ($n = 95$)		No model ($n = 54$)		Other model ($n = 131$)	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
School enrollment	1,129	594	1,142	687	1,273	729
Proportion minority students	.35	.29	.31	.23	.35	.25
Proportion free/reduced price meals	.32	.18	.32	.15	.29	.15
Number of violent crimes	328	469	231	385	332	412
Number of school resource officers	.88	.48	.93	.43	.95	.40
Number of security measures	4.86	.72	4.84	.84	4.84	.72

discussed in quantitative methodology literature (e.g., Stevens, 2001), Wilks's $\Lambda = .85$ from the MANOVA can be approximately converted to $\eta^2 = .15$ as an effect size measure ($\eta^2 = 1 - \Lambda$). Using Cohen's (1988) guidelines, $\eta^2 = .15$ is considered a medium effect size.

Table 2 presents the descriptive statistics for the three groups on the eight outcome variables, group comparison statistical tests, and the effect sizes for two group comparisons (Virginia model vs. each of the other two groups). Seven of the eight outcome variables showed a statistically significant univariate ANOVA. Follow-up Dunnett post hoc tests indicated no statistically significant differences between the group of Virginia model schools and either one of the other two groups of schools on short-term suspensions or aggressive discipline violations. However, schools using the Virginia model of threat assessment had lower levels of long-term suspensions than the other two groups of schools. Furthermore, students in schools using the Virginia model reported less bullying and teasing in the school, a more favorable learning environment, and greater willingness to seek help from adults in the school than students in the other two groups of schools. Finally, students in the schools using the Virginia model reported lower levels of student victimization and bullying victimization than students in the schools using no form of threat assessment, The statistically significant effect sizes ranged from 0.27 to 0.40, which fall into the range of small to medium effect sizes, using Cohen's *d* of 0.20 and 0.50 as benchmarks for small and medium effects, respectively.

Discussion

This is the first report of a study comparing schools using or not using a threat assessment approach. This study was retrospective rather then experimental in design, and examined school safety conditions in schools that had previously adopted or not adopted the Virginia threat assessment guidelines. Previous studies have reported on the implementation of threat assessment, but have not compared schools using threat assessment with other groups of schools (Cornell et al., 2004; Strong & Cornell, in press; Van Dyke & Schroeder, 2006). In our sample of 95 schools using the Virginia guide-

Table 2
Statistical Tests and Effect Sizes for Group Comparisons on School Climate Measures

Variable	(1) Virginia model (n = 95)		(2) No model (n = 54)		(3) Other model (n = 131)		Group comparison effect size[a] and statistical test result	
	M[b]	*SD*	*M*	*SD*	*M*	*SD*	1 vs. 2	1 vs. 3
Student victimization[c]	1.27	0.33	1.33	0.31	1.41	0.37	−0.19	−0.40*
Bullying victimization[c]	1.21	0.49	1.29	0.48	1.40	0.51	−0.16	−0.38*
Bullying climate[c]	16.48	1.13	16.96	0.96	16.83	0.92	−0.45*	−0.35*
Help seeking[c,d]	22.58	1.74	21.87	1.80	22.14	1.55	0.40*	0.27*
Learning Environment[c,d]	27.75	2.16	26.79	2.55	27.08	2.18	0.42*	0.31*
Short-term suspensions[c]	364.65	470.62	455.47	423.14	309.79	334.19	−0.20	0.14
Long-term suspensions[c]	10.50	12.71	15.28	20.78	15.71	20.24	−0.30*	−0.30*
Aggressive discipline violations	40.79	26.96	39.96	22.08	37.46	23.69	0.03	0.13

[a] The effect size is Cohen's *d*:

$$d = \frac{\bar{X}_{\text{Virginia model group}} - \bar{X}_{\text{other group}}}{S_{\text{pooled}}},$$

where S_{pooled} is the pooled standard deviation across the two comparison groups. [b] These are adjusted group means obtained from MANCOVA after adjusting for the six school background variables. [c] Statistically significant group differences ($\alpha = .05$) on this outcome variable in the follow-up univariate ANCOVA. [d] This is a positive outcome for which a higher value is desirable; all others are negative outcomes for which lower values are desirable.

* Dunnett group comparison (Virginia Model group vs. each of the other two groups) is statistically significant at $\alpha = .05$.

lines for threat assessment, students reported a more positive school climate characterized by less teasing and bullying than students in schools using no form of threat assessment. They were more likely to report that school staff cared about all students and treated them with respect, and they expressed more willingness to seek help for problems such as bullying and threats of violence. Also, school records showed fewer long-term suspensions in schools using the Virginia model. These effects were close to medium in size (Cohen's *d* ranging from 0.30 to 0.45). An effect size of 0.40 means that the average high school using the Virginia guidelines would stand at the 66th percentile of high schools not using the guidelines.

Although this study did not test for causal effects through an experimental design, one possible explanation for these findings is that the Virginia model places an emphasis on encouraging students to seek help for bullying and other threats of violence and on resolving peer conflicts and disputes before they rise to the level of serious problems. For example, the threat training program specifically recommends that school staff teach students the difference between snitching and seeking help. Moreover, two previous studies have reported that all cases were resolved without the threatened act of violence being carried out (Cornell et al., 2004; Strong & Cornell, in press). It would be useful to gather additional information about the way in which the threat assessment model was implemented and how it influenced student–staff interactions.

It is surprising that there were even more pronounced differences between schools using the Virginia model and schools using an alternative approach to threat assessment. The Virginia model schools were superior to this comparison group on six of eight outcome measures, with effect sizes ranging from 0.27 to 0.40. Students attending high schools using the Virginia model reported that they observed less teasing and bullying among their peers and they were less likely to report being the victim of bullying or other forms of aggressive behavior, such as being threatened or assaulted. They were more likely to report that school staff treated them with respect, and they expressed more willingness to seek help from school staff. Perhaps most notably, schools using the Virginia model had fewer long-term suspensions (although not short-term suspensions) than schools using an alternative model. The consistency between student report and administrative records suggests that there is a reliable difference between the two groups of schools.

Explanations for Study Findings

How can the consistent differences between the Virginia model group and the other two groups be explained? The Virginia model was designed to carry out the recommendations of school safety reports by the FBI (O'Toole, 2000) and Secret Service (Vossekuil et al., 2002). The Virginia procedures were developed in consultation with a team of experienced school administrators, school resource officers, and mental health professionals (Cornell & Sheras, 2006), and the process was field tested for 1 year in 35 schools (Cornell et al., 2004). The procedures are described in detail in a 145-page manual and school teams are trained in a 6-hr workshop. In contrast, it is unlikely that in-house administrative school staff would have had the time and resources to develop comparable procedures for their schools.

In addition, the Virginia model places a strong emphasis on resolving student conflicts and intervening in cases of bullying before such problems escalate into violence. The model offers alternatives to disciplinary actions and recommends minimal use of long-term suspensions. Previous studies reported low rates of long-term suspensions (Cornell et al., 2004; Strong & Cornell, 2008). A study of school staff attending the workshop found that participants demonstrated an increased willingness to take a problem-solving approach to student threats of violence and decreased interest in a zero-tolerance approach (Allen et al., 2008). The change in attitudes toward zero tolerance is especially noteworthy because zero-tolerance discipline policies are widely employed in Virginia schools.

To detect potentially confounding factors in the school population that would explain study findings, we compared the three groups on school size, proportion of minority students, and proportion of students eligible for a reduced price meal. Although there was substantial variation across high schools, there were no statistically significant differences between groups.

An additional concern was that schools might differ in the level of violent crime in the surrounding community or in the presence of school resource officers and other security measures in the school. However, group comparisons showed no differences among the three groups in the annual number of violent crimes recorded by police for the high school attendance zone, in the number of school resource officers at the school, or in student perceptions of the extent of security measures (metal detectors, video cameras, locked doors, etc.) used by the school.

Despite these efforts to show that the group differences could not be attributed to school demographics or security measures, it is still conceivable that uncontrolled self-selection factors could have contributed to study findings. It is conceivable that schools that already had lower rates of bullying and more positive climates chose to adopt the Virginia model, whereas schools with less positive school climates were more inclined to develop their own model or not use a threat assessment approach. Only a randomized controlled study can fully address this limitation. It should be noted, however, that the decision to adopt the Virginia model was not made by individual high schools, which lessens the possibility of selection bias at the school level. Typically, the decision to undertake training in the Virginia threat assessment model was made at the central administrative level rather than the school level. Typically, the superintendent's office contracted with the University of Virginia to provide division-wide training for all schools in the county or city. Moreover, high school staff members were not always favorably inclined to adopt a threat assessment model and did not consistently hold attitudes that were congruent with this approach. For example, the training stressed that students who threatened to kill someone did not need to be given a long-term suspension, and that almost all students who made such threats could continue in school, provided that the threat assessment procedures were followed. A study of workshop participants showed large improvements in staff attitudes toward threat assessment principles and decreased endorsement of zero-tolerance approaches after training (Allen et al., 2008).

Directions for Future Research

An important direction for future research is to obtain independent verification that the principals implemented the threat assessment strategy that they reported on the school safety audit survey. Furthermore, no information was available on the extent to which the school staff carried out the threat assessment model with integrity. These limitations make it desirable to conduct a more extensive study of how schools carry out threat assessment procedures.

The effect sizes in this study were close to medium effect size, with an overall $\eta^2 = .15$ for the multivariate comparison of the three groups. The multivariate effect size indicates that approximately 15% of the variance on the outcome measures could be attributed to group status. There are several possible explanations for these results. First, because there was no way to determine how completely and consistently the school staff implemented the threat assessment model, it is possible that the intervention effects were diminished by the presence of schools that were not fully compliant with the model. In a review of school-based violence prevention programs, Wilson, Lipsey, and Derzon (2003) noted that effect sizes are typically much higher when a program is conducted on a demonstration basis and monitored by researchers than when the program is implemented on a routine basis without benefit of researcher support. It would be useful to obtain measures of model compliance that could be correlated with these outcomes.

Second, the outcome measures used in this study were distal from the threat assessment intervention. Case data on students who made threats would provide a more direct assessment than samples of ninth grade students reporting on general climate conditions. It is noteworthy that an intervention model designed to deal with students making threats of violence seems to have produced generalized effects on the school climate. It is possible that the resolution of student threats had a ripple effect on student interactions in general, such as reducing incidents of bullying because a student who was bullying others was identified in the course of a threat assessment. Another possibility is that the problem-solving approach of threat assessment had a salutary effect on staff responses to other student misbehavior.

Beyond student report, there was also a small effect on long-term suspensions. After statistically adjusting for six covariates in the MANCOVA, Virginia model schools recorded an average of 10.5 long-term suspensions, no-model schools recorded 15.28 long-term suspensions, and schools using an alternative model of threat assessment recorded 15.27 long-term suspensions. These variations could be attributable to differences in how schools deal with student threats. Cornell et al. (2004) found that the high schools in their field-test study conducted approximately 10 threat assessments per year. If no-model schools and alternative-model schools used a zero-tolerance policy for such cases, it could produce a similar difference in long-term suspensions. However, it is less likely that disciplinary outcomes for threat assessments could produce differences in short-term suspensions or disciplinary violations for physical aggression, which were not statistically significant in this study. The rates for short-term suspensions ($M = 355$ per school) and aggressive disciplinary violations ($M = 39$) are much higher than the typical number of threats that would come to the attention of high school authorities for a threat assessment.

Although a randomized controlled study is needed, these findings support the conclusion that the Virginia model appears to be a promising approach for responding to student threats of violence that has a beneficial effect on school safety conditions. The Virginia threat assessment model is intended to orient school staff toward a problem-solving approach to student threats that may have a generalized effect on other student conflicts and on student willingness to seek help for threatening situations.

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Journal of Threat Assessment and Management
2015, Vol. 2, No. 2, 98–113

2169-4842/15/$12.00 http://dx.doi.org/10.1037/tam0000038

Student Threat Assessment Associated With Safety in Middle Schools

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Authorities in law enforcement and education have recommended the use of threat assessment to prevent violence, but few studies have examined its usefulness in middle schools. This retrospective, quasi-experimental study compared middle schools that use the Virginia Student Threat Assessment Guidelines (Cornell & Sheras, 2006; $N = 166$) with schools that either do not use threat assessment ($N = 119$) or use an alternative model of threat assessment (school- or district-developed; $N = 47$). Based on school records, schools using the Virginia Guidelines reported lower short-term suspension rates than both groups of schools. According to a statewide school climate survey, schools using the Virginia Guidelines also had fairer discipline and lower levels of student aggressive behaviors, as reported by students. Finally, teachers reported feeling safer in schools using the Virginia Guidelines, as opposed to both groups of schools. Additional analyses of school records found that the number of years a school used the Virginia Guidelines was associated with lower long-term suspension rates, student reports of fairer discipline, and lower levels of student aggressive behaviors. All analyses controlled for school size, minority composition, and socioeconomic status of the student body. These findings suggest that use of a threat assessment approach to violence prevention is associated with lower levels of student aggression and a more positive school climate.

Keywords: general victimization, school climate, school violence, threat assessment

After a series of shootings culminating in the tragic incident at Columbine High School, authorities in education and law enforcement recommended the use of threat assessment in schools (Fein et al., 2002; O'Toole, 2000). In their 2013 report on gun violence, the American Psychological Association (2013) recognized behavioral threat assessment as an effective violence prevention strategy. This article reports on the use of student threat assessment in a sample of middle schools[1] (typically Grades 6–8 and ages 11–13).

Threat assessment is a systematic approach to violence prevention in which threats are evaluated on a case-by-case basis to identify individuals who pose a serious threat of violence (Fein et al., 2002; O'Toole, 2000). A joint report of

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This project was supported by Grant 2012-JF-FX-0062 awarded by the Office of Juvenile Justice and Delinquency Prevention, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect those of the Department of Justice. Dewey G. Cornell is the principal developer of the Virginia Student Threat Assessment Guidelines. We thank Donna Michaelis and Jessica Smith of the Virginia Department of Criminal Justice Services and Cynthia Cave of the Virginia Department of Education for their support of the Virginia Secondary School Climate Study. We thank members of the project research team, including Juliette Berg, Anna Heilbrun, Francis Huang, Anna Lacey, and Patrick Meyer.

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[1] This article uses the United States educational system to describe child education up through eighteen years. The U.S. system includes elementary (i.e., primary school in other countries), middle, and high school (i.e., secondary school in other countries), grades kindergarten (or K) through 12, and ages 6 to 18. Generally, middle school encapsulates grades 6 to 8 and ages 11 to 13. An "alternative school" in the U.S. is an educational system that accommodates children whose academic, emotional, and/or physical needs are not addressed in traditional schooling.

the U.S. Department of Education and Secret Service, as well as a separate study of school shootings by the Federal Bureau of Investigation, concluded that a threat assessment approach ought to be part of a concerted effort by school authorities to promote a positive school climate where students feel safe and supported and discipline is consistent and fair (Fein et al., 2002; O'Toole, 2000).

Although the central purpose of threat assessment is to prevent targeted acts of violence like school shootings, these phenomena are rare (Nekvasil, Cornell, & Huang, 2015); in a study of multiple casualty homicides, only 0.8% occurred at schools, versus 47% at residences. At the same time, student threats of violence are relatively common at schools, but most often they are expressions of anger or challenges to fight, rather than indications of an imminent shooting. A national survey of school principals found that threats were officially recorded in 46% all U.S. public schools during the 2009–2010 school year (Neiman, 2011). However, many threats go unreported to school authorities. A survey of high school students found that approximately 12% of students reported being threatened at school in a 1-month period (Nekvasil & Cornell, 2012). Yet only 26% of these students reported the threat to someone, most often because they did not regard it as serious (Nekvasil & Cornell, 2012).

Although threats are rarely carried out (Cornell et al., 2004; Nekvasil & Cornell, 2012), one study found that threats are strongly associated with general aggression in school, such as fighting (Singer & Flannery, 2000), suggesting that school authorities cannot ignore threats when they occur. Aggressive behaviors such as fighting and bullying are common problems in schools, yet lethal attacks or more serious violence such as rape or aggravated assault are rare (Robers, Kemp, & Truman, 2013). In light of the low base rate for severe violence in schools and the much higher rate of fighting and bullying, a school threat assessment will most likely be concerned with a broad range of aggressive behaviors rather than shootings. Thus, an important aim of threat assessment is to resolve less severe acts of violence—like bullying and peer conflicts—which could escalate into more serious violence.

To address less serious yet more common violence, threat assessment in schools encourages a problem-solving approach that helps to create a positive school climate where students and teachers feel safe and supported (Cornell & Heilbrun, 2015). A positive school climate, in turn, may help to prevent shootings by creating an environment with less stress and discord (Fein et al., 2002; Daniels et al., 2010). Such a climate may also encourage students to report when they are threatened, a prerequisite for a threat assessment to be initiated. A study of averted school shootings (Daniels et al., 2010) found that a critical factor was a positive school climate in which students reported concerns to school authorities that triggered an investigation.

Another reason for using threat assessment is that it provides schools with an alternative to zero tolerance disciplinary practices. Zero tolerance is the disciplinary practice of using rigid and punitive responses to student misbehavior, typically out-of-school suspension (American Psychological Association Zero Tolerance Task Force, 2008). School suspension has been associated with a number of negative student outcomes, including disengagement from school (Arcia, 2006), further misbehavior and academic failure (Hemphill et al., 2006), and school dropout (Fabelo, Thompson, Plotkin, et al., 2011). Given these deleterious results, several national reports have called for U.S. schools to move away from zero tolerance policies (Morgan et al., 2014; U.S. Department of Education, 2014).

Middle Schools and Threat Assessment

There is a special need to study middle schools because they face disciplinary challenges related to developmental changes in their students. As students become adolescents, they typically become more socially engaged and concerned with social status and popularity (Berndt, 1982; Nansel et al., 2001). Compared with other grade levels, middle school grades experience elevated rates of threats of violence (Cornell et al., 2004) and fighting and bullying (Nansel et al., 2001).

Furthermore, many U.S. middle schools employ zero tolerance disciplinary practices to address student misbehavior. A nationwide study of middle schools found a disproportionately high use of out-of-school suspensions compared to both elementary and high school grades

(Losen & Skiba, 2010). Another investigation found that out-of-school suspensions more than quadrupled from 2.4% of students in elementary school to 11% in middle school (Losen & Martinez, 2013).

Virginia Student Threat Assessment Guidelines

The Virginia Student Threat Assessment Guidelines (Virginia Guidelines) was developed for schools based on the recommendations of the FBI and Secret Service (Cornell & Allen, 2011; Fein et al., 2002; O'Toole, 2000). The Virginia Guidelines discourage overly punitive responses to student misbehavior by encouraging administrative responses that are appropriate and measured, focused on correcting the student's misbehavior while keeping him or her engaged in school. The threat assessment guidelines include explicit training on the importance of moving away from zero tolerance approaches and school suspensions to respond to student threats and misbehaviors. Rather, threats are treated as an indication that a student is frustrated by a problem he or she cannot resolve. Thus the multidisciplinary team's effort to help the student resolve the problem is seen as both a violence prevention measure and a teaching opportunity, and disciplinary consequences are calibrated to the seriousness of the student's misbehavior. Furthermore, suspension from school is recommended only in the most serious cases when there are immediate safety concerns. Importantly, in almost all cases the student is able to return to school under conditions specified in a safety plan (Cornell et al., 2012).

A study of 351 school staff following training in the Virginia Guidelines found that they were less likely to endorse a zero tolerance approach and more open to using threat assessment principles to address student conflicts and other problematic behaviors (Allen, Cornell, Lorek, & Sheras, 2008). These results were consistent across principals, mental health providers, and law enforcement officers.

The Virginia Guidelines uses a decision tree to evaluate threats of violence. The threat is first classified as *transient* or *substantive* (Cornell & Sheras, 2006). If school personnel conclude that the threat was not serious, or *transient*, they resolve the case expeditiously. Generally, transient threats are figures of speech, hyperbole, or expressions of anger that do not reflect a sustained intent to harm someone. Disciplinary actions may include a reprimand, brief counseling, or minor disciplinary action for the student.

Substantive threats are those that indicate that an individual or individuals intend to carry out a threat to harm someone. For such threats, which are often student fights, the threat assessment team determines the appropriate protective actions to take, including notifying the victim and victim's parents, notifying the student's parents, and strongly cautioning the student of potential consequences should he or she attempt to carry out the threat. Serious substantive threats may be resolved with separating the student from potential victims. The threat assessment team may also recommend counseling or some other mental health intervention. For very serious substantive threats (such as threats to kill, rape, or seriously harm another), the team not only notifies appropriate parties, but also initiates a safety evaluation that involves both a law enforcement investigation and mental health assessment of the student.

The final step involves a written safety plan based on the findings from the safety evaluation. The aim of the safety plan is twofold: (a) to take steps on behalf of the safety of potential victims, and (b) to determine the most appropriate educational provisions for the student. When the student is allowed to return to school, the safety plan includes specific instructions for the student's behavior and procedures to monitor him or her upon return (Cornell & Allen, 2011). A detailed description of the threat assessment procedure is found in the Virginia Guidelines manual (Cornell & Sheras, 2006).

School Climate and Safety Conditions

Three studies found that schools using the Virginia Guidelines had lower long-term suspension (11–364 days) rates than control group schools (Cornell, Sheras, Gregory, & Fan, 2009; Cornell et al., 2012). The first study (Cornell et al., 2009) compared suspension rates in 95 high schools using Virginia Guidelines to 131 high schools with alternative threat assessment procedures and 54 high schools with no threat assessment program. The study demonstrated that high schools using the Virginia Guidelines had lower long-term suspension rates than both groups of schools. The current

study extends this retrospective examination of Virginia high schools to middle schools (Cornell et al., 2009).

A randomized control trial compared K–12 students who made a threat of violence in schools using the Virginia Guidelines with a control group of K–12 students in schools not using the Virginia Guidelines (Cornell et al., 2012). After one school year, students in the intervention group received significantly fewer long-term suspensions (25%) than students in the control group (49%; Cornell et al., 2012).

Schools using the Virginia Guidelines may have less peer aggression, as measured by three scales used in previous studies: prevalence of teasing and bullying, bullying victimization, and general victimization such as student fighting or threats. Compared with schools with no threat assessment program, students in schools using the Virginia Guidelines reported less aggression (Cornell et al., 2009). The retrospective study (Cornell et al., 2009) also found that students reported lower levels of teasing and bullying in school. This is important because pervasive student aggression undermines school safety and has been linked to student dropout rates in high school (Cornell, Huang, et al., 2013).

Several studies indicate that the Virginia Guidelines promotes two features of school climate: school-wide support of students—specifically student willingness to seek help from authorities—and the use of discipline that is strict but fair, which is described as having high disciplinary structure (Cornell et al., 2009, 2012; Cornell, Sheras, Kaplan, et al., 2004; Konold et al., 2014). Importantly, adolescents may be reluctant to seek help from adults at school following a threat of violence if they perceive that school authorities cannot or will not do anything to help (Nekvasil & Cornell, 2012). Thus it would be useful to examine student perceptions of school support and disciplinary practices in middle schools using the Virginia Guidelines.

One less often examined aspect of school climate is teachers' experience of school safety. Previous research has shown that teachers are affected by student aggression toward them; professional burnout has been linked to teachers perceiving that students are hostile toward them (Brouwers & Tomic, 1998). Student aggression may involve verbal threats, intimidation, or physical attacks, and result in teachers feeling unsafe at school.

School-wide demographics of enrollment size, student socioeconomic status (SES), and racial composition have been associated with a wide range of factors affecting school climate. Some research suggests that aggressive behaviors such as bullying, threats, and fighting occur more frequently at larger schools (Stewart, 2003), although there are mixed results on whether large schools are inherently less safe because of their size (Klein & Cornell, 2010). Schools with lower student SES have been linked with higher rates of fighting and bullying victimization (Leithwood & Jantzi, 2009). Furthermore, previous research has found disproportionate suspension rates for minority students (Gregory et al., 2011). On the other hand, one study found that minority students in multiethnic schools perceive that they are safer than minority students in less diverse schools (Juvonen, Nishina, & Graham, 2006). Thus these potentially confounding factors are important to consider in analyses of school climate and safety conditions.

The Current Study

The purpose of the present study was to investigate school climate and safety conditions of schools using the Virginia Guidelines in comparison with two other groups of schools: schools that developed their own models (or obtained training from another source), and schools that did not have a threat assessment program.

Our primary research question was, "Is use of the Virginia Guidelines associated with more favorable school climate and safety conditions than schools that do not use the Virginia Guidelines?" To address our first question, the study used data from a statewide school climate survey of Grades 7 and 8 conducted in 2013. School climate and safety conditions were examined across multiple variables. The study analyzed short-term and long-term suspension rates across the three groups of schools. School climate was then examined by measuring student perceptions that their schools were supportive of students, as well as strict but fair in their disciplinary practices (Konold et al., 2014). We analyzed teacher perceptions that schools were safe and student reports of bully-

ing victimization, general victimization, and prevalence of teasing and bullying. It was hypothesized that use of the Virginia Guidelines would be associated with more positive school climate and safety conditions, as compared with both groups of schools (Cornell et al., 2004, 2012; Cornell, Sheras, Gregory, & Fan, 2009).

One limitation of this study is that school climate data were available for only one year and so it was not possible to identify changes in school conditions before and after implementation of the Virginia Guidelines. Therefore, we measured how long schools used the Virginia Guidelines and examined a second question: "Is longer use of the Virginia Guidelines associated with more favorable school climate and safety conditions in schools?" It was hypothesized that longer use of this threat assessment model would improve student and teacher trust in school authorities, strengthen disciplinary structure, and increase student willingness to seek help for threats of violence. Previous research has found that school size, student socioeconomic status, and racial composition are associated with school climate and level of discipline problems in school (Gregory et al., 2011; Juvonen, Nishina, & Graham, 2006; Klein & Cornell, 2010; Leithwood & Jantzi, 2009; Stewart, 2003). Consequently, the current study controlled for school enrollment, the percentage of students eligible for free or reduced price meals (FRPM), and the proportion of minority students.

Method

Participants

Schools. The Virginia Secondary School Climate Survey (VSSCS, 2013) was administered in 423 schools with 7th-8th grade students, which included some schools that had younger or older grades. (In U.S. public education, some school systems choose to group their 7th and 8th grade with younger or older grades.) The study used two sources to create a sample of middle schools. First, University of Virginia (UVA) training records were used to identify schools that used the Virginia Guidelines. Second, the study used records from an annual safety audit survey conducted by the Virginia Department of Criminal Justice Services to determine schools that either had no formal threat assessment program or used a program other than the Virginia Guidelines. The safety audit survey asked whether a school used "a formal threat assessment process to respond to student threats of violence" (response options yes or no) and "what kind of formal threat assessment model" the school used. Principals responded whether they used a school-created model, division-created model, or other model.

The study's final sample consisted of 332 schools. There were 166 schools in the Virginia Guidelines group, 119 that reported using another threat assessment program, and 47 schools that had no formal threat assessment program. A total of 91 schools had missing or ambiguous records: either they did not report their procedures, reported that they used the Virginia Guidelines when they had not been formally trained on them, or did not report that they used the Virginia Guidelines when UVA records indicated that they had been trained. Follow-up contacts with some of these schools indicated that some school administrators were not aware that they were using the Virginia Guidelines because it had been adopted before they came to the school. Because we lacked information on implementation fidelity, it seemed preferable to drop schools with missing or ambiguous information. Among the schools that reported using another threat assessment program, nearly all indicated that their model was created by staff from their school or the central office for their school division. Anecdotally, many school staff reported that they reviewed the reports on threat assessment by the U.S. Secret Service and FBI in developing their approach. A statewide study of the specific practices in Virginia schools is under way (Cornell et al., 2015).

Total school enrollment for the study sample ($N = 332$) ranged from 109 to 4,033 students ($M = 749$, $SD = 435$). The proportion of students in each school who qualified for free or reduced price meals (FRPM) ranged from 2% to 99% ($M = 44$, $SD = 20.5$). The percentage of minority students in each school ranged from 0% to 99% ($M = 40.1$, $SD = 27.2$). The sample was distributed across urban, suburban, and rural regions.

For the 91 schools dropped from the sample, total school enrollment ranged from 61 to 1603 ($M = 607$, $SD = 312$). The proportion of students in each school who qualified for free or reduced price meals (FRPM) ranged from 6% to

96% (M = 49.4, *SD* = 20.8). The percentage of minority students in each school ranged from 0% to 99% (M = 33.8, *SD* = 29). When compared with schools included in the sample, schools that were dropped had a mean school enrollment size that was 19% lower than school retained in the sample. Schools dropped from the sample also had an 11% higher proportion of students who qualified for FRPM.

Students. Each school was given two options for administering the Virginia Secondary School Climate Survey: (a) invite every student in the 7th and 8th grade to take the survey (whole grade option) or (b) randomly select 25 seventh grade students and 25 eighth grade students from school rosters to take the survey (random sample option). If a school chose the random sample option, they were provided a random number list with instructions for selecting students. All students were eligible to participate unless they had limited English proficiency or intellectual disability. Parents of each student received a letter informing them of the survey. Reasons a student may not have taken the survey included parents declining their child's participation, school absence on the day of administration, cognitive or physical limitations precluding survey completion, or another reason such as technical difficulties at the school. Student participation was the total number of students who participated across all schools divided by the total number invited to participate. The student participation rate was 86%.

Of the 29,203 students who participated in the survey, approximately 52% were female. Their self-reported racial/ethnic breakdown was 51% White, 20% Black, 16% multiracial, 3% Asian, 2% American Indian/Alaskan, and 8% another race/ethnicity. Finally, 13% of students reported that they were Hispanic or Latino in a separate question.

Teachers. All 7th and 8th grade teachers were requested to participate in the survey. A total of 6,298 teachers completed the survey, with an 84% participation rate. Approximately 75% reported that they were female. Most teachers (53%) had more than 10 years of experience. Approximately 24% reported 6 to 10 years of experience, 13% reported 3 to 5 years, and 10% reported fewer than 3 years of experience. Other demographic variables were not requested to protect teacher identity.

Procedure

School climate surveys were administered anonymously online in spring 2013. All participants were given standard instructions before taking the survey. Students completed surveys during school hours and were supervised by teachers or other school staff members. Teachers completed surveys independently. School principals completed the state's safety audit survey after the end of the school year.

Validity Screening

Previous research suggests that screening survey responses for students who responded carelessly or dishonestly improves the quality of survey data (Cornell, Lovegrove, & Baly, 2014). Specifically, validity screening has been shown to reduce extreme responses to questions, lower rates of risky behaviors, and yield school climate results more consistent with independent criteria (Cornell, Klein, Konold, & Huang, 2012; Cornell, Lovegrove, & Baly, 2014).

Two validity screening items were included in the student survey: (a) "I am telling the truth on this survey" and (b) "How many of the questions on this survey did you answer truthfully?" For the first question, students responded 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, or 4 = *strongly agree*. Students who answered 1 = *strongly disagree* or 2 = *disagree* were removed from the sample. The second question response options included 1 = *all of them*, 2 = *all but 1 or 2 of them*, 3 = *most of them*, 4 = *some of them,* and 5 = *only a few or none of them*. Students who answered either 4 = *some of them* or 5 = *only a few or none of them* were removed from the sample. After screening, 2,871 (9% of the sample) were identified as invalid responders and removed from the sample. Additional information on validity screening in this sample is reported elsewhere (Cornell, Huang, et al., 2013).

Measures

Suspension rates. Schools provided school-level discipline data to the Virginia Department of Education (VDOE). Principals were required to report the number of short-term (1 to 10 days) and long-term (11 to 364 days) out-of-school suspensions for their schools. All

schools used standard definitions of disciplinary infractions. Students who had both short- and long-term suspensions were coded into the more serious offense (i.e., long-term suspension).

Suspension counts were unduplicated, meaning that each student was counted only once in the records regardless of the number of times they were suspended. This practice is consistent with previous literature using suspension rates (Gregory et al., 2011; Hemphill et al., 2006; Suh et al., 2007; Wallace et al., 2008) and maintains independence of the observations. Suspension rates were determined by dividing unduplicated suspensions by the school's total enrollment.

School climate measures. School climate was measured on two domains of student-perceived support and disciplinary structure. These two scales measured student perceptions that teachers and adults support and listen to their students (support) and that their school's disciplinary practices are strict but fair (disciplinary structure; Cornell et al., 2009, 2012; Konold et al., 2014).

The Student Support scale consisted of eight items that measure student perceptions that adults at school are supportive of them (e.g., "There are adults at this school I could talk with if I had a personal problem"). Each student answered 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, or 4 = *strongly agree*. Multilevel exploratory and confirmatory factor analyses supported the use of eight items to assess overall school support (Konold et al., 2014). Cronbach's alpha for the scale was .93 in the present study.

The Disciplinary Structure scale consisted of seven items that measure student perceptions that their school is strict but fair (e.g., "The punishment for breaking school rules is the same for all student"). Each student answered 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, or 4 = *strongly agree*. Multilevel exploratory and confirmatory factor analyses demonstrated adequate model fit for the scale (RMSEA = .08, CFI = .93, TLI = .89, SRMR = .04; Konold et al., 2014). In the present study, Cronbach's alpha was .77.

Teacher perceptions of school safety. Teacher perceptions of safety consisted of three items: (a) I feel physically safe at this school, (b) I feel that there is adequate safety and security at this school, and (c) I worry about someone committing a shooting at this school. Teachers responded 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, or 6 = *strongly agree*. Because there were only three questions and each was of substantive interest, they were not combined into a scale.

Peer victimization. To obtain a comprehensive assessment of safety conditions from student perspectives, the survey included three measures of peer victimization (Cornell, Shukla, & Konold, in press). One scale asked students about their experiences of being bullied using a standard definition of bullying, a second scale asked about general victimization, such as fighting, and a third scale asked about perceptions of bullying and teasing observed among other students.

Bullying victimization. The Bullying Victimization scale consisted of five items that measured personal experiences of being bullied. First, students were provided with the following definition of bullying:

> Bullying is the repeated use of one's strength or popularity to injure, threaten, or embarrass another person on purpose. Bullying can be physical, verbal, or social. It is not bullying when two students who are about the same in strength or popularity have a fight or argument.

Students then responded 0 = *never,* 1 = *once or twice,* 2 = *about once per week,* or 3 = *more than once per week* to (a) whether they had been bullied at school in the past year, and then whether they had been (b) physically, (c) verbally, (d) socially, and (e) cyber bullied at school in the past year.

Previous research on this measure has demonstrated consistency with teacher and peer nominations of bully victims, as well as stability over middle school grades (Baly, Cornell, & Lovegrove, 2014). Bullying victimization using this measure was linked to negative school outcomes, such as lower grade point average, and mental health problems like feelings of sadness or thoughts of suicide (Baly et al., 2014). Cronbach's alpha was .87.

General victimization. The General Victimization scale consisted of five items that measured student experiences of verbal or physical aggression by peers (e.g., "A student threatened to hurt me" and "A student physically attacked, pushed, or hit me"). Students responded 0 = *no*, 1 = *once*, or 2 = *more than*

once, and higher scores on the scale indicate greater victimization. The scale has been used in other studies of peer victimization in schools (Cornell, Gregory, Huang, & Fan, 2013; Klein & Cornell, 2010). Prior literature on this scale of general victimization has shown a link between higher rates of aggression and poorer school climate (Cornell, Shukla, & Konold, in press). For the present study, Cronbach's alpha was .76.

Prevalence of teasing and bullying (PTB). Students answered five questions about their perceptions of the extent of teasing and bullying in their school (e.g., "Bullying is a problem at this school" and "Students here often get teased about their clothing or physical appearance"). Each student responded 1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, or 4 = *strongly agree*.

Previous exploratory and factor analyses indicated adequate model fit and supported the five-item PTB scale at the school level (Konold et al., 2014). Two studies supported the criterion validity of the PTB scale by showing that higher scores predicted lower student engagement (Mehta, Cornell, Fan, & Gregory, 2013), and lower school-wide passing rates on state-mandated testing (Lacey & Cornell, 2013). Cronbach's alpha was .87.

Analysis Plan

The study used data available for one year only, limiting the study to a cross-sectional design. Ten dependent measures of school climate and safety conditions were examined across three groups of schools. School-level measures derived from the school climate survey were determined by summing items and determining the average for all students (or all teachers) within the same school.

To address the first research question, multivariate analysis of covariance (MANCOVA) was used to compare school climate and safety conditions among three groups of schools: those that used the Virginia Guidelines, those that reported an alternate method of threat assessment, and those that did not have any threat assessment program. Least Significant Difference (LSD) was used to adjust for multiple comparisons (Williams & Abdi, 2010; Hayter, 1986). The analyses controlled for percentage of students eligible for free or reduced price meals (FRPM), proportion of minority students, and school enrollment.

To address the second question, hierarchical linear regressions were used to examine the associations between how long a school had used the Virginia Guidelines and their school climate and safety conditions.

Results

Table 1 includes demographic characteristics and dependent measures for the three groups of schools. The MANCOVA test for overall group differences was significant (Wilks's $\lambda = 0.84$; $F(20, 574) = 2.65$, $p < .001$). Partial η^2 was used as a measure of effect size, which was 0.08 and considered a small effect size (Cohen, 1988).

Seven of the 10 outcome variables were statistically significant (see Table 1). Post hoc pairwise comparisons demonstrated that schools using the Virginia Guidelines had lower short-term suspension rates and lower levels of student-reported teasing and bullying, bullying victimization, and general victimization, compared to both groups of schools. Teachers in schools using the Virginia Guidelines reported feeling safer at school for all three variables. Effect sizes using partial η^2 ranged from 0.03 to 0.05, which are considered small effects. Notably, comparisons between schools using another model and schools without a formal threat assessment program were not significant.

The second question examined the length of time that schools have used the Virginia Guidelines. School demographic variables were entered at step 1 and length of time using the Virginia Guidelines at step 2. Only step 2 of the regressions is summarized here (see Table 2).

Short and Long-Term Suspension Rates

At Step 2, length of time using Virginia Guidelines was not significant for short-term suspension rates. The total variance accounted for by the model was $R^2 = 0.50$, $p < .001$. In contrast, length of time was a significant predictor for long-term suspension rates ($\beta = -0.37$, $p < .01$); in other words, schools that used the Virginia Guidelines for more years had lower long-term suspension rates after controlling for school demographic variables. The total variance accounted for by the model was $R^2 =$

Table 1
Group Comparisons on School Climate and Safety Condition Measures

Variable	(1) Virginia model $n = 166$		(2) No model $n = 47$		(3) Other model $n = 119$		Group comparison effect size and statistical test result	
	M	*SD*	*M*	*SD*	*M*	*SD*	1 vs. 2	1 vs. 3
School enrollment	887	499	608	293	610	309	n/a	n/a
Percent minority student	42.5	25.3	37.2	26.7	49.5	18.1	n/a	n/a
Percent free/reduced priced meals	38.7	21.5	47.8	17.9	38.0	29.9	n/a	n/a
Short-term suspension rate*	.08	.07	.12	.09	.12	.09	−.03*	−.02*
Long-term suspension rate	.004	.01	.003	.001	.004	.001	.00	.00
Bullying victimization*	7.12	.53	7.51	.58	7.36	.67	−.033*	−.19*
General victimization*	7.61	.56	7.87	.51	7.81	.49	−.021*	−.14*
Prevalence of teasing and bullying*	12.4	1.27	12.9	.99	12.8	1.04	−.47*	−.32*
Teacher perception of safety[a] (1)*	5.02	.43	4.90	.05	4.20	.03	.06	.20*
Teacher perception of safety (2)*	4.31	.59	3.89	.58	3.91	.79	.32*	.30*
Teacher perception of safety (3)*	2.47	.50	2.71	.57	2.73	.65	−.19*	−.20*
School structure	19.0	1.34	18.6	.18	18.7	.11	.38	.25
School support	24.0	1.34	23.9	.19	23.8	.12	.11	.18

[a] Teacher perception of safety items were the following: (1) I feel physically safe at this school, (2) I feel that there is adequate safety and security at this school, and (3) I worry about someone committing a shooting at this school.
* $p < .05$.

0.22, $p < .001$. The increase in R^2 was = 0.12, $p < .001$.

Structure Scale

At step 2, length of time was significantly associated with student reports of school structure ($\beta = 0.16$, $p < .05$). Student-reported school structure was higher in schools that used the Virginia Guidelines for more years. The total variance accounted for by the model was $R^2 = 0.22$, $p < .001$; the increase in R^2 was 0.02, $p < .05$.

Support Scale

At step 2, FRPM significantly contributed to the model. Length of time did not predict student-reported support.

Teacher Perceptions of Safety

At step 2, only one safety item ("I feel physically safe at this school") was significantly associated with length of time ($\beta = 0.18$, $p < .01$). Teachers reported greater feelings of safety in schools that had been using the Virginia Guidelines for more years. The total variance attributable to the model was $R^2 = 0.28$, $p < .001$. The variance accounted for by Virginia Guidelines duration was $R^2 = 0.03$, $p < .05$.

Bullying Victimization Scale

At step 2, length of time was inversely associated with bullying victimization ($\beta = -0.17$, $p < .05$). In other words, students in schools using the Virginia Guidelines for a longer duration reported lower levels of bullying victimization. The total variance accounted for by the model was $R^2 = 0.04$, $p < .05$; the portion of variance attributable to Virginia Guidelines duration was $R^2 = 0.03$, $p < .05$.

General Victimization Scale

At step 2, length of time was inversely associated with general victimization ($\beta = -0.18$, $p < .05$). Schools using the Virginia Guidelines for a longer duration had lower levels of general victimization, as reported by students. The total variance accounted for by the model was $R^2 = 0.18$, $p < .001$; the portion of the variance accounted for by Virginia Guidelines duration was $R^2 = 0.03$, $p < .05$.

Table 2
Multiple Regressions on School Safety and Climate Measures

Step	Short-term suspensions			Long-term suspensions			School support			School structure			PTB			Teacher perception of safety[a]			Bullying victimization			General victimization		
	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2	β	R^2	ΔR^2
Step 1		.50*	.50*		.09*	.09*		.12*	.12*		.19*	.19*		.19*	.19*		.25*	.25*		.01	.01		.15*	.15*
School enrollment	.07			.17			−.04			.12			.21*			−.06			−.06			.01		
% Minority	.26*			.14			.04			−.34*			.08			−.09			−.02			.20*		
% FRPM	.58*			.22*			−.37*			−.17			.43*			−.48*			.08			.28*		
Step 2		.50	.50		.22*	.12*		.12	.002		.22*	.02*		.21*	.02*		.28*	.03*		.04*	.03*		.18*	.03*
School enrollment	.06			.15			−.04			.12			.20*			−.06			−.06			.002		
% minority	.27*			.16			.05			−.34*			.09			−.10			−.02			.21*		
% FRPM	.54*			.08			−.36*			−.11			.37*			−.42*			.02			.21*		
Virginia guidelines duration	−1.84			−.37*			.04			.16*			−.17*			.18*			−.17*			−.18*		

[a] Only one perception of safety, "I feel physically safe at this school," was significant. The other two items had the following values at step 2: "I feel that there is adequate safety and security at this school" ($R^2 = .18$; $\Delta R^2 = .02$), and "I worry about someone committing a shooting at this school" ($R^2 = .12$; $\Delta R^2 = 0$), all $ps > .05$.
* $p < .05$.

Prevalence of Teasing and Bullying Scale

At step 2, length of time was inversely associated with student-reported PTB ($\beta = -0.17$, $p < .05$). Schools using the Virginia Guidelines for a longer duration had lower levels of student-reported PTB. The total variance accounted for by the model was $R^2 = 0.21$, $p < .001$; the portion of the variance accounted for by Virginia Guidelines duration was $R^2 = 0.02$, $p < .05$.

Discussion

The present study demonstrated that middle schools using the Virginia Guidelines reported more favorable school safety conditions and climate compared with two comparison groups, schools that used an alternate threat assessment program and those that reported having no program. Although a retrospective study of school conditions, there were positive findings across three sources of information, including school suspension records, student reports, and teacher reports.

Middle schools using the Virginia Guidelines had significantly fewer short-term suspensions (a rate of 8 per 100 students) than both comparison groups. The latter two groups had rates that were 50% higher, each averaging approximately 12 short-term suspensions per 100 students. These findings are consistent with several studies, including a retrospective investigation, longitudinal study, and randomized controlled trial. Whereas the previous studies examined high schools (Cornell et al., 2009, 2011) or a group of K–12 schools (Cornell et al., 2012), this was the first study concerned specifically with middle school grades, where discipline infractions and school suspensions are high (Nansel et al., 2001).

These findings are noteworthy in light of the deleterious impact that zero tolerance policies and out-of-school suspensions have on student academic performance and success (APA Zero Tolerance Task Force, 2008; Raffaele Mendez, 2003; *Seal v. Morgan*, 2000). Moreover, there is evidence that suspension of students does not improve student behavior or increase school safety, and the U.S. Department of Education (2014) has called on schools to review their discipline practices and reduce their use of school suspension. The Virginia Guidelines

stress threat assessment as an alternative to zero tolerance policies and school authorities are trained to minimize the use of school suspensions. They are discouraged from using a single sanction for all student misbehaviors and from treating all infractions the same regardless of severity. Suspensions are advised primarily when there is an imminent threat of harm to others (Cornell & Sheras, 2006).

Two aspects of school climate that were not associated with the Virginia Guidelines were student perception that discipline is strict but fair, and that schools are supportive of their students. This conflicts with a previous finding that threat assessment was associated with school support in high schools (Cornell et al., 2009). One explanation may be that students do not readily perceive fairer discipline or school support in schools with fewer suspensions and decreased aggressive behaviors, which are more direct targets of the Virginia Guidelines.

Notably, our three distinct measures of student-reported aggressive behaviors—bullying victimization, general victimization, and prevalence of teasing and bullying—were lower in schools in which the Virginia Guidelines was used, as compared with both groups of schools. This is supported by a previous quasi-experimental study that found a 79% reduction in bullying infractions the year after high schools began to use the Virginia Guidelines (Cornell, Gregory, & Fan, 2011). The present study's findings about student aggression are also consistent with the Virginia Guidelines and threat assessment approach generally, which endeavor to train teams to address grievances and conflicts before they escalate into more serious violence (Cornell & Sheras, 2006; Randazzo et al., 2006).

Teachers reported feeling safer from violence in schools that used the Virginia Guidelines. Previous research on guidelines training has shown immediate changes in school team member beliefs about school violence, threat assessment, and zero tolerance policies (Allen et al., 2008). Specifically, staff members who received training were less worried about school shootings and felt prepared to use the Virginia Guidelines as a violence prevention measure. These staff members were primarily administrators and mental health professionals, and did not include a group of teachers. To date, however, there has been no examination of teacher perceptions of safety in relation to the Virginia Guidelines. One possible explanation for this finding is that teams gain increased confidence from their training that can affect school climate and be communicated to teachers. Future studies should examine what teachers knew about threat assessment in their schools and what factors they identify as making them feel safer.

Finally, these results generalized across schools with diverse demographics, suggesting that the findings were not an artifact of schools with less poverty, differing racial composition, or smaller enrollments. Furthermore, previous research suggests that use of threat assessment may be associated with decreased racial disparities in disciplinary practices, although an investigation of racial differences was beyond the scope of the present study (Cornell, Gregory, & Fan, 2011; Wallace et al., 2008). Future research investigating the association between disparities among demographics and threat assessment practices would be useful.

Taken together, our results suggest that disciplinary methods in schools that use the Virginia Guidelines are less punitive, as evidenced by lower suspension rates. Students reported less aggression on three measures of bullying and peer conflict. Moreover, teachers reported feeling safer at school across three variables measuring feelings of safety. These findings are consistent with the goals of the Virginia Guidelines to improve school safety and climate by responding to student aggressive behaviors with appropriate, in-school disciplinary actions rather than school exclusion. Such disciplinary measures, in turn, help to ensure safety and correct misbehaviors while keeping students in school to learn.

Length of Time Using the Virginia Guidelines

The present study did not have longitudinal data that could be used to make a stronger test of the association between using the Virginia Guidelines and positive school climate and safety outcomes. Therefore, associations between length of time using the Virginia Guidelines and school conditions were examined. Analyses demonstrated that longer use of the Virginia Guidelines was associated with more favorable school climate and safety conditions. Schools that used the Virginia Guidelines for

two years or less ($n = 22$) averaged 10 suspensions per 1,000 students, whereas schools that used the guidelines for 10 or more years ($n = 65$) averaged two long-term suspensions per 1,000 students. These results may be attributable to a combination of change in policy and improvement in student behaviors so that long-term suspensions are no longer as frequent. Administrators may play a pivotal role in the consistent application of disciplinary policies, such that, over time, organizational infrastructure is in place to perpetuate such practices. Moreover, teachers who perceive that their administrators support them may be more likely to practice administrators' policies. Such hypotheses should be investigated in future studies.

The current study showed that middle schools that used the Virginia Guidelines longer also had more positive student perceptions of school climate. As with suspension rates, full program effects may not be immediate. Improved student and teacher perceptions would not occur immediately, but would follow the sustained implementation of the Virginia Guidelines and threat assessment team actions. Over time, threat assessment cases would accumulate and there would be more opportunities for intervention. For example, assessing and intervening for bullying would take time to have school-wide effects.

Finally, the length of time that schools used the Virginia Guidelines was positively associated with school safety, as measured by both positive teacher observations of safety and lower levels of student teasing and aggression. This finding provides evidence that it takes time for a threat assessment program to have full impact in a school. One mechanism that may explain the changes in school conditions is the school's response to the student making a violent threat. Over time, school personnel perceive that they are safer, whereas students who misbehave are both corrected and supported at school.

Limitations and Future Research

The study was cross-sectional and correlational, and thus cannot provide definitive evidence of causal relations between use of the Virginia Guidelines and school climate and safety variables. A longitudinal, prospective study with a randomized, experimental design could control for baseline levels of the study's outcome measures and would be useful to determine causal links between the Virginia Guidelines and school climate outcomes. Furthermore, the study relies on student and teacher perceptions that may introduce additional error and limit what can be concluded from our findings. Students and/or teachers may perceive their schools to be safe or unsafe, or to have more or less positive climates, based on their internal biases or limited observations that do not reflect school-wide conditions. However, the study used aggregate data across three sources of information (i.e., students, teachers, and suspension records), minimizing error resulting from self-report. Furthermore, there is no reason to assume that self-report error would result in favorable results for schools using the Virginia Guidelines.

Uncontrolled self-selection factors may have contributed to study findings. For example, a school that used the Virginia Guidelines may have already had safe conditions and a positive school climate. It is important to note, however, that the decision to incorporate the Virginia Guidelines was not made by individual schools but rather school divisions, lessening the likelihood of school-level selection bias. The problem of self-selection is mitigated in part by the finding that schools using the guidelines longer showed more positive school safety conditions and climate.

There were no available measures of implementation fidelity in order to assess whether effects were larger in schools with better implementation, as the randomized controlled trial found (Cornell et al., 2012). Findings may have been diminished by the inclusion of schools with poor implementation of the Virginia Guidelines (Cornell et al., 2012). Furthermore, some schools were dropped from the study because their use of threat assessment procedures was not clear, and these schools tended to be smaller schools with slightly higher proportions of low-income students. It will be useful for future studies to gather more information about the implementation fidelity of the Virginia Guidelines and other programs and how it is associated with school climate and safety outcomes. A statewide assessment of threat assessment practices in Virginia public schools was initiated in 2015 (Cornell et al., 2015).

There remains a need to define, differentiate, and examine alternative threat assessment models. In the present study, it was not possible to define specific alternative threat assessment practices, and most schools reported developing their own model. Thus there was no group of schools identified that used specific programs, such as the Salem Keizer (Van Dreal, 2011) or Dallas (Van Dyke & Schroeder, 2006) models. To assess schools that use other programs, it would be useful to develop a taxonomy or set of standards for classifying different models of threat assessment.

Further research is needed to identify best practices across programs. Particularly, it would be useful to identify practices among threat assessment models that are linked to positive school climate and safety outcomes. Mechanisms within threat assessment models may include specific responses to student violence (e.g., the use of in-school discipline vs. suspensions in responding to threats). Such research would enable threat assessment researchers to design the most useful programs for schools.

It was expected that results on length of time using the guidelines would be similar to those from the first research question. But there were discrepancies between the results for the two research questions regarding suspensions and school disciplinary structure. Specifically, short-term suspensions were lower in schools using the Virginia Guidelines, as compared with the other two groups of schools, whereas long-term suspensions were lower in schools that had used the guidelines for a longer duration. Long-term suspension rates are much lower than short-term rates (short-term suspension rates were per 100 students and long-term suspension rates were per 1,000 students). Because of their low base rate, reductions in long-term suspensions might develop more slowly.

Moreover, although school disciplinary structure was no different in schools using the guidelines as opposed to the other groups of schools, schools that had used the Virginia Guidelines for longer had higher structure compared to schools that had used the guidelines for a shorter duration. These differences suggest that some changes may be slower to develop than others. It would be useful to assess schools for differences in implementation fidelity, as well as changes in fidelity over time. Fidelity of implementation is a special concern in schools because there will be turnover in school administrators and other school staff (counselors, psychologists, resource officers, and social workers) that make up the school threat assessment team.

The available research on threat assessment has focused primarily on school level effects. More study is needed on individual student effects, including controlled studies on students who threaten others with violence, their targeted victims, and school responses to such threats. Specifically, it would be useful to know long-term academic and disciplinary outcomes of students who make threats or who have been threatened with violence.

In summary, future research on threat assessment would benefit from developing standards for threat assessment programs in schools and identifying best practices that are associated with the most positive outcomes at both the school and individual levels. These results would inform current knowledge about aspects of the threat assessment approach that are most useful for school personnel. They would also assist researchers and administrators in implementing the best approach to violence prevention—one that not only provides students with safety, but also encourages a positive climate that promotes educational success.

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Received March 1, 2015
Revision received September 27, 2015
Accepted November 4, 2015 ■

JOURNAL OF SCHOOL VIOLENCE
https://doi.org/10.1080/15388220.2019.1707682

Routledge
Taylor & Francis Group

Student Threat Assessment as an Alternative to Exclusionary Discipline

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ABSTRACT

Threat assessment has been proposed as a method for schools to respond to student threats of violence that does not rely on exclusionary discipline practices (e.g., suspension, transfer, expulsion, arrest). The present study compared disciplinary consequences for 657 students in 260 schools using the Comprehensive Student Threat Assessment Guidelines (CSTAG) with a comparison group of 661 students in 267 schools using a more general threat assessment approach. The odds that students receiving a threat assessment in CSTAG schools would receive a suspension (*OR* = 0.59) or law enforcement action (*OR* = 0.47) were less than those in schools using a general approach. Students in CSTAG schools were expelled at lower rates (0% versus 1.7%) than students in comparison schools. These results indicate that schools using the CSTAG model are less likely to respond to student threats with exclusionary discipline.

ARTICLE HISTORY
Received 19 July 2019
Accepted 17 December 2019

KEYWORDS
School safety; threat assessment; exclusionary discipline; school violence

After the 1999 Columbine shooting, authorities in education and law enforcement recommended that schools use a novel strategy called threat assessment to prevent targeted school violence (TA; Fein et al., 2002; National Threat Assessment Center, 2018; O'Toole, 2000). In the next two decades, school threat assessment has emerged as a national practice with nearly every state encouraging its use (Woitaszewski, Crepeau-Hobson, Conolly & Cruz, 2017). One of the benefits of school threat assessment is that it provides an alternative to zero tolerance discipline. In U.S. schools, zero tolerance refers to the use of exclusionary discipline as an automatic consequence for violation of a school rule, regardless of the severity or context of the student's behavior (APA Task Force, 2008). Given the nationwide efforts to identify alternatives to exclusionary discipline (e.g., Morgan, Salomen, Plotkin, & Cohen, 2014), it is important to investigate the association between threat assessment and disciplinary outcomes.

In 2013, Virginia became the first state to mandate that all public schools K-12 have threat assessment teams (Code of Virginia §22.1–79.4). The state law permitted schools to use any model of threat assessment that met some general guidelines provided by its Department of Criminal Justice Services. The Virginia Student Threat Assessment Guidelines (later renamed the Comprehensive School Threat Assessment Guidelines; Cornell, 2018) was developed with an emphasis on giving school authorities an alternative to zero tolerance. However, many schools chose to meet the general framework of the state guidelines, which became a kind of de facto model. Notably, the state guidelines take no position on school disciplinary practices or the use of zero tolerance. An important question is whether the lower rates of exclusionary discipline found in schools using the CSTAG model (e.g., Cornell, 2013; Cornell, Allen, & Fan, 2012; Cornell, Gregory, & Fan, 2011; Cornell, Sheras, Gregory, & Fan, 2009; Nekvasil & Cornell, 2015) extend to schools using other

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models of threat assessment. Since nearly all schools not using CSTAG were using the state guidelines as their model, it seemed most appropriate to compare the schools using the CSTAG model with those following the state's general guidelines. (Omitted from study were schools reporting use of a model of their own construction or a hybrid of CSTAG and state guidelines.)

Zero tolerance and exclusionary discipline practices

A series of school shootings in the 1990s stimulated widespread use of zero tolerance policies in schools. Zero tolerance policies use exclusionary discipline for all violations of a school rule, even if minor or unintentional, in order to send a message to students that such actions will not be tolerated (APA Task Force, 2008; Borum, Cornell, Modzeleski, & Jimerson, 2010). Exclusionary school discipline is defined as practices that remove students from their original school learning environment through out-of-school suspension, expulsion, or alternative school placement. Zero tolerance policies have resulted in students being suspended for minor infractions that pose little danger to their peers such as pointing a finger like a gun or bringing a plastic knife to school and have resulted in an overall increase in the number of school suspensions (Morgan et al., 2014).

Despite the laudable goal of zero tolerance to deter violent behavior in schools, there is little evidence of its effectiveness (APA Task Force, 2008; Morgan et al., 2014). Concern has been raised about the negative consequences of exclusionary approaches to discipline. In fact, several studies have documented serious negative outcomes associated with the use of exclusionary discipline including lower academic achievement, increased rates of school failure and dropout risk, and further misbehavior leading to disciplinary actions (e.g., Balfanz, Byrnes, & Fox, 2014; Fabelo et al., 2011). In addition, these practices disproportionally impact students identified as racial and ethnic minorities. For example, Losen and Martinez (2013) estimated that 11% of all middle school students nationwide were suspended and that about 33% of Black middle school students were suspended during the 2009–2010 academic year. In addition, previous research indicates an association between school poverty rate and exclusionary discipline practices (e.g., Peguero & Shekarkhar, 2011; Skiba et al., 2014). Given these negative consequences and trends, it is important to examine the potential of school policies that promote alternatives to exclusionary discipline practices.

CSTAG model

CSTAG, formerly known as the Virginia Student Threat Assessment Guidelines, or VSTAG, is an evidence-based model of threat assessment (National Registry of Evidence-Based Programs and Practices, 2013). The goal of CSTAG is to help schools respond to student threats with an emphasis on resolving student conflicts and the problem that precipitated the threatening behavior (Cornell, 2018). In the CSTAG model, threatening statements and behaviors are treated as indicators of frustration by an individual. The threat assessment and intervention process is designed to prevent violence by helping the individual to resolve the problem, thereby removing the impetus for violence. Safety precautions and legal actions are taken as part of this process when judged to be necessary to prevent imminent acts of violence.

The CSTAG model provides practical guidelines for school-based teams to conduct assessments of students who threaten to commit an act of violence. One or two team members can use these guidelines to conduct a preliminary assessment of the seriousness of a student's threat and determine whether the threat can be quickly resolved as a transient threat or requires more extensive evaluation and intervention. In more serious, substantive cases, the full threat assessment team, which typically consists of an administrator, mental health professional, and school resource officer, can use these guidelines to develop a comprehensive plan to prevent violence. The CSTAG process is guided by a 145-page manual (Cornell, 2018).

The CSTAG model uses a structured process following a 5-step decision tree to help the team gather information and resolve the threat. At Step 1, the team interviews witnesses and gathers

information on the circumstances in which the threat was made. In most cases, the threatening student is given an opportunity to explain what they meant by the threatening statement or behavior. At Step 2, all available information is used by the school teams to consider the credibility and seriousness of the threat. A threat is considered transient if it can be determined that the student has no intent to carry out the threat and the assessment is concluded here. Transient threats may result in disciplinary consequences, however, they do not require protective action or security efforts. On the other hand, if the team is unable to resolve the threat or they are unsure about the threat's status, then the decision tree directs them to respond to the threat as a substantive threat.

All substantive threat responses (Step 3) require protective action, which varies depending on the circumstances of the threat and how the threat might be carried out. Protective action typically involves notifying the intended victim and their parents, as well as contacting the parents of the student who made the threat. Protective action could also involve increased monitoring or supervision of the threatening student. Depending on the nature and credibility of the threat, substantive threats are further classified as either "serious substantive" or "very serious substantive" threats. Threats involving a simple assault or a fight are classified as "serious substantive" and resolved at this point.

Very serious substantive threats typically involve a threat to kill or use a lethal weapon. In addition to the protective actions taken at Step 3, the school team will take two additional actions (Step 4). A mental health professional will screen the student with the goals of determining whether the student needs mental health services or counseling and understanding what conflict or problem underlies the threat. A law enforcement officer will investigate for evidence of planning and preparation, to determine whether a crime has been committed, and assess what additional protective actions might be needed. The team will integrate findings from the mental health assessment and law enforcement investigation into a safety plan. The student might be suspended from school for several days until this plan can be formulated, but in most cases will be able to return to school or undergo a change in placement. At Step 5, the team implements and monitors the safety plan.

Multi-disciplinary threat assessment teams are trained in a full-day workshop including extensive case studies and team exercises. During the workshop, the CSTAG decision-tree process is illustrated with several case examples. Team members examine practical and legal issues associated with threat assessment and engage in a series of case exercises to practice assessment and intervention planning.

Importantly, the CSTAG model places a strong emphasis on changing the school climate by abandoning zero tolerance discipline and moving away from exclusionary discipline practices such as suspension, expulsion, and school transfer. Both the workshop and manual dispel misconceptions about the prevalence of school shootings that have driven a fear-based over-reaction to student misbehavior and emphasize the use of threat assessment as a more flexible and effective alternative to exclusionary discipline. For example, the workshop cites injury statistics from the Centers for Disease Control and Prevention indicating that for every shooting in a school, there are approximately 1,500 shootings involving injury or fatality outside of schools, and that the average school can expect a student homicide every 6,000 years (Borum et al., 2010). The training explicitly indicates that suspension is only necessary in the most serious cases, and only for a few days, while the team develops a safety plan.

A series of studies have found that school staff trained in the CSTAG model reduced their support for zero tolerance (Allen, Cornell, Lorek, & Sheras, 2008; Cornell et al., 2012). For example, Allen et al. (2008) reported a drop in support for zero tolerance among 351 staff from two divisions trained in a one-day threat assessment workshop. Similarly, Cornell et al. (2012) reported the results of a randomized controlled trial in which participants in 40 schools were trained in threat assessment and subsequently showed statistically significant declines in support for zero tolerance and less inclination to use suspension as a response to student threats with large effects for both outcomes.

Beyond changes in attitudes, schools using CSTAG showed reductions in the use of exclusionary discipline in several studies (e.g., Cornell, 2013; Cornell et al., 2009, 2011, 2012; Nekvasil & Cornell,

2015). In a comparison of 95 high schools using CSTAG, 131 schools using a locally developed threat assessment model, and 54 schools not using a threat assessment approach, Cornell and Sheras (2006) reported schools using CSTAG had an average of 10 long-term suspensions compared to 15 for the other two groups ($p < .05$, $d = .30$). Cornell et al. (2011) similarly found a 52% reduction in long-term suspensions ($\eta^2 = .096$) from the baseline year prior to training to the post-training year among 26 high schools trained in CSTAG compared to 26 control high schools with similar demographics not using CSTAG, who showed no change in long-term suspension rates.

In 2015, Nekvasil & Cornell reported lower short-term suspension rates among the 166 middle schools implementing CSTAG compared to 119 schools that did not use threat assessment and 47 schools that used an alternative threat assessment model. Further, schools using CSTAG for more years had lower long-term suspension rates after controlling for school demographics. In an individual-level randomized controlled trial of the CSTAG model in one school division, Cornell et al. (2012) examined exclusionary discipline outcomes for 100 students in 20 schools randomly assigned to CSTAG training and compared them to 101 students in 20 schools that delayed training for one year. Results of this study indicated that students in CSTAG schools were less likely to receive long-term suspension ($OR = 0.35$) or an alternative school placement ($OR = 0.13$) after controlling for demographics (i.e., race, gender, grade level).

The CSTAG decision tree guides teams to make a key distinction between transient and substantive threats, which strongly influences (but does not automatically determine) the type of disciplinary actions a student receives following threat assessment. Burnette, Datta, and Cornell (2017) found that the majority (78%) of threats were classified as transient, and that the classification of a threat as substantive by a team resulted in a far greater likelihood of a student receiving out-of-school suspension ($OR = 4.8$), placement change ($OR = 9.7$) and law enforcement action ($OR = 15$) compared to transient threats.

State guidelines for threat assessment

One limitation of the previous CSTAG studies is that they were conducted prior to Virginia's statewide mandate for threat assessment. The 2013 state legislation directed the Virginia Department of Criminal Justice Services (DCJS) to develop a 59-page resource document for schools, *Threat Assessment in Virginia Public Schools: Model Policies Procedures, and Guidelines* (2013). Although this document is explicitly "not intended to be prescriptive" (p. 6), the state provided training in regional one-day threat assessment workshops using these guidelines and it was adopted by many schools as their threat assessment model.

Similar to the CSTAG model, the state guidelines train multidisciplinary threat assessment teams comprised of representatives from administration, counseling or mental health, instruction, and law enforcement. The state guidelines also have the over-arching goal of preventing violence through assessment and intervention to reduce risk and ascribes to principles articulated in federal reports (Vossekuil et al., 2002).

The state guidelines focus primarily on assessing the dangerousness of a student and use a classification system of low, moderate, high, and imminent risk to assess the likelihood that a student will carry out a violent act. The CSTAG threat assessment process is more structured and detailed, with a decision tree and procedures for interviewing students who have made threats, the recipient or target of the threat, and others with relevant information. Most relevant to this present study, the CSTAG process places emphasis on resolving threats without the use of exclusionary discipline, whereas the state guidelines take a neutral position on school discipline.

Purpose

There is great interest in identifying school policies and practices that reduce the use of exclusionary discipline (Losen, 2015). As an emerging national practice, it is important to consider how threat

assessment influences disciplinary outcomes. In 2018, the federal STOP School Violence act allocated funding to train schools in threat assessment. State legislation has mandated the use of threat assessment in several states (e.g., Florida, Maryland, Virginia) with threat assessment legislation under consideration in many others. According to Woitaszwewski et al. (2017) nearly every state encourages the use of threat assessment in their schools and provides resources, guidelines, or training opportunities.

Despite the widespread support for threat assessment, reports that this approach could offer a viable strategy for reducing the use of exclusionary discipline have been challenged because all previous studies have compared schools using CSTAG with schools not using threat assessment or using a nonstandard, locally devised model of threat assessment. Because Virginia has required all schools to use threat assessment and has provided standardized training in a general model, it is now possible to make a stronger comparison between two groups of schools that have both had systematic training in a standard approach. The major limitations of the current study are its quasi-experiment design because schools could not be randomly assigned and the lack of schools using additional threat assessment models. Schools in Virginia generally report using either the CSTAG model or the state guidelines, although some report a hybrid or mixed model, or a locally developed model that could not be easily classified for study.

Therefore, the present study was limited to a comparison of two groups of schools. Using threat assessment case data mandated by a state survey, this study examined whether there were differences in the use of exclusionary discipline for students who received a threat assessment in schools using the CSTAG model versus those in schools using the state guidelines. In addition, we examined the prevalence of law enforcement actions that involve school removal, including arrest and incarceration.

Methods

Sample

Schools were identified for inclusion in the present study based on a state-mandated school safety survey completed by school principals for the 2014–15 school year. Survey results indicated that 782 elementary, middle, and high schools conducted at least one threat assessment for a student threat against others. Among these schools, 260 schools (33.2%) reported using CSTAG and were confirmed by training records as trained in CSTAG. Another group of 267 schools (34.1%) reported using the DCJS *Guidelines* (2016). Schools which reported no threat assessment cases were omitted from the sample. Schools with indeterminate status (i.e., 255 schools that either were trained in CSTAG but did not report using it or reported using CSTAG but had not received training in it) also were excluded from the analytic sample.

Schools reported case level data for up to 5 threat assessment cases. (To lessen the reporting burden, schools were not required to report more than 5 cases.) Detailed case level data from the school safety audit survey (described below) were available for 657 students in the 260 CSTAG schools and 661 students in the 267 non-CSTAG schools. This included all of the cases for 228 CSTAG schools (88%) and 238 non-CSTAG schools (89%).

Measures

In 2015, the state School Safety Audit Survey included questions asking school administrators to report on the outcomes of their threat assessment cases during the 2014–15 school year. The survey asked whether the student received a suspension, placement change, or expulsion as a consequence of making a threat. The safety audit survey also reported whether a student was arrested, incarcerated, or given court charges in response to the threat. There were so few cases of arrests (1%), incarceration (<1%), or court charges (5%) that these three categories were combined into a category

of legal actions (approximately 6%). These served as the dependent variables and were coded as present (1) and absent (0) for each case. The survey also included student demographic information (i.e., race, gender, special education status, grade) that was included as student-level covariates. Additional information on the threat assessment case data is reported elsewhere (Cornell et al., 2015, 2017; Cornell, Maeng, Huang, Shukla, & Konold, 2018).

Analytic strategy

A hierarchical generalized linear model with a binary outcome and a logit link function (i.e., multilevel logistic regression) was used to determine whether any differences in disciplinary outcomes in schools using CSTAG or the state approach were attributable to other factors. The primary independent variable of interest was whether or not the school used CSTAG (coded as 1 or 0). The outcome variable was disciplinary or legal sanction (i.e., suspension, expulsion, placement change, law enforcement action). These analyses accounted for the clustered nature of the data, where students were nested within schools, and included school- and student-level covariates. School-level predictors included percent of students eligible for free or reduced price meals (FRPM), percent of nonwhite students in the school, and school size. At the student-level, we included student grade level (i.e., elementary, middle, and high school), gender, race, and special education status. Results are presented in terms of odds ratios (ORs), where ORs > 1 signify a higher likelihood of receiving the disciplinary sanction and ORs < 1 indicate a lower likelihood. Data management and analyses used SAS 9.4.

Because no students in schools using CSTAG were expelled following a threat assessment, multilevel logistic regression could not be used to determine differences in expulsion rates in the two groups. Although χ^2 tests are often used to determine whether the number of observations in each category differs from what would be expected by chance, standard χ^2 tests ignore the clustered nature of the data (e.g., cases within schools) resulting in greater Type I errors (Reed, 2004). As a result, our analysis of expulsions used Rao and Scott (1981) χ^2 tests that specifically accounted for students being clustered within schools.

Results

The frequencies of suspensions, expulsions, and law enforcement actions were lower in schools using CSTAG. There was no difference in the frequency of placement change in schools using CSTAG (Table 1).[1]

Suspension

The logistic regression model indicated that the odds that students receiving a threat assessment in CSTAG schools would receive a suspension were lower than in comparison schools (OR = 0.59, $p < .001$; Table 2). Threats by elementary students (OR = 0.44, $p < .001$) and students whose gender was not reported (OR = 0.43, $p < .01$) were also less likely to receive a suspension. In contrast, students who received special education services were more likely to receive a suspension than students not receiving special education services (OR = 1.4, $p < .05$).

Expulsion

No expulsions were reported in schools using CSTAG whereas 11 expulsions were reported in schools using the state model. Rao-Scott χ^2 tests indicated that differences in expulsion rates across groups were significantly different, χ^2 (1) = 7.20, p = .008.

Table 1. Disciplinary sanction by CSTAG or not (n = 1,318).

	Did not receive sanction		Received sanction	
	n	%	n	%
Suspension				
CSTAG	422	64.2%	235	35.8%
Other model	340	51.4%	321	48.6%
School transfer				
CSTAG	565	86.1%	91	13.9%
Other model	551	83.4%	110	16.6%
Expulsion				
CSTAG	657	100%	0	0%
Other model	650	98.3%	11	1.7%
Law Enforcement Action				
CSTAG	634	96.5%	23	3.5%
Other model	623	94.3%	38	5.7%

Table 2. Logistic regression odds ratios for statewide sample (n = 1,282 cases).

	Out-of-school suspension	Law enforcement action	School transfer
	OR	OR	OR
School level			
School size	1.00	1.00	1.00
% Nonwhite	0.41*	0.2704	0.45
% FRPM[1]	4.93***	1.54	6.92***
Student level			
Male	1.09	1.02	1.15
Gender unknown	0.43**	0.24	0.52
Black[2]	1.21	1.50	1.33
Hispanic[2]	1.24	3.53**	1.43
Asian[2]	0.51	0.65	1.11
Other[2]	0.84	0.74	1.33
Special education services	1.36*	0.70	1.27
Elementary school student[3]	0.44***	0.06***	0.44***
High school student[3]	1.40	1.62	2.06**
CSTAG	0.59***	0.46*	0.87

Note. [a]FRPM = free or reduced price meal. [b]White is the reference group. [c]Middle school student is the reference group.
*p < .05. **p < .01. ***p < .001.

Placement change

There was no group difference in the odds that a student would receive a placement change as a result of a threat assessment. However, both elementary and high school students were less likely to receive a placement change as a consequence of making a threat compared to middle school students (ps < .01).

Law enforcement action

Law enforcement actions (OR = 0.47, p < .05) were also less likely to be taken against students in schools using CSTAG and less likely to be associated with elementary students (OR = 0.06, p < .001) compared to middle school students. Law enforcement actions were more likely to be associated with students of Hispanic ethnicity (OR = 3.5, p < .01) compared to White students. Inspection of the data revealed that there were 100 Hispanic students referred for a threat assessment and 11 (11%) of these students received a law enforcement action. These actions were arrest (1 student) and court charges (11 students).

Discussion

Overall, students receiving a threat assessment in schools using CSTAG were less likely to be suspended, expelled, or receive a law enforcement action (i.e., arrest, charge, or incarceration) than students in schools using the state guidelines. This result suggests that schools using CSTAG are overall less likely to use exclusionary discipline as a response to a threat, consistent with the training emphasis in this model. There was no statistically significant difference in placement changes.

The results of this study support and extend the findings of previous studies on the impact of the CSTAG threat assessment model on school discipline (e.g., Cornell et al., 2011, 2012). In a previous randomized controlled trial of 201 students in 40 schools, Cornell et al. (2012) found that students in schools using CSTAG were less likely to receive a long-term suspension or to be transferred to a different school than students in comparison schools not using threat assessment. The RCT study provided strong evidence of an effect on school exclusion, but the comparison group was schools not using any form of threat assessment. In addition, the schools in the experimental group had recently been trained in threat assessment and were participating in a study of its impact. In contrast, the present study found a lower rate of suspension and school transfer in schools that were not actively under study and had been trained in threat assessment a varying number of years prior to the study year. Furthermore, the CSTAG schools in this study were compared to schools with threat assessment training, albeit a different model. As Nekvasil and Cornell (2015) suggested, that CSTAG training may result in a philosophical shift in approaches toward exclusionary discipline that may result in lower use of suspension in schools.

The CSTAG training emphasizes the use of threat assessment as an alternative to zero tolerance and reviews research showing the ineffectiveness and potential adverse effects of out of school suspension (Morgan et al., 2014). It is noted that schools using zero tolerance are not safer than other schools and students who are suspended from school do not show the expected improvement in their behavior and tend to show deleterious effects on their engagement in school, academic progress, and behavioral adjustment. More generally, the CSTAG model stresses that teams take a problem-solving approach to student threats and seek interventions that will allow students to continue in school (Cornell, 2018). These views, which are stressed in the workshop, emphasized repeatedly in the training manual, and embedded in the forms used in completing a threat assessment, may explain the lower rates of exclusionary discipline for students in CSTAG schools observed in this study.

The present study also extends our knowledge of the potential outcomes of threat assessment cases by describing the degree to which law enforcement actions were undertaken in response to a threat in CSTAG schools (3.5%) compared to non-CSTAG schools (5.7%). Appropriate use of law enforcement action as a school disciplinary measure has the potential to address serious threats and criminal behavior, yet, overreliance on arrest, charge, and incarceration may cause confusion and mistrust among students and may exacerbate the school-to-prison pipeline (e.g., Thurau & Wald, 2009). The low percentage of law enforcement actions taken in CSTAG schools provide further evidence that that CSTAG-trained teams make differentiated decisions about responses to threats and judiciously refer students to the legal system.

One unexpected finding involves the outcomes for Hispanic students. Although there were not statistically significant differences in school disciplinary actions taken toward Hispanic students, they were more likely to receive law enforcement actions than White students. Although these cases represent a small percentage (11%) of the Hispanic students referred for threat assessment, this percentage was higher than for the White student reference group (4.3%). This finding is concerning because it could indicate an ethnic bias in court charges for Hispanic students, consistent with the larger literature on racial and ethnic disparities in law enforcement actions toward students (Morgan et al., 2014). More investigation is needed to understand what factors contributed to this outcome. There are two potential explanations for the differences across Hispanic and White students. In

Virginia, 12.5% of all students identify as English Language Learners (ELL), but 49.9% of Hispanic students are ELLs (VDOE Fall Membership, 2019). Thus, the Hispanic students and/or their parents may have been less fluent in English, and less familiar with cultural norms and expectations, which could influence the threat assessment process or the decisions by law enforcement authorities to charge the student. Another possible explanation is that review of case information indicated that several of the Hispanic students were identified as gang members. Local law enforcement may have decided to press charges in part because the students were part of a gang.

It is also notable that students receiving special education services were more likely to be suspended following a threat assessment than their peers. This is consistent with previous research that found that students receiving special education services were 3.9 times more likely to be referred for threat assessment than their peers (Cornell et al., 2017) and were 1.3 times more likely to be suspended (Cornell et al., 2018). However, the results of the present study conflict with prior studies that found that threat assessments did not result in higher suspension rates for students in special education than students in general education (Cornell, 2018; Kaplan & Cornell, 2005). Previous research suggests students receiving special education services are more likely to receive exclusionary discipline than their peers (Miller & Meyers, 2015; Sullivan, Klingbeil, & Van Norman, 2013). More study is needed to understand the reasons for these differences and the slightly higher rate of suspension for students in special education programs. Future threat assessment training programs should explicitly address discipline for students receiving special education services in an effort to reduce this disparity.

Previous studies investigating school-level predictors of exclusionary discipline have reported mixed results (e.g., Peguero & Shekarkhar, 2011; Skiba et al., 2014). For example, Peguero and Shekarkhar (2011) conducted an analysis of 7,250 students from 580 schools in the Education Longitudinal Study of 2002. Consistent with the results of the present study, they found that schools with higher FRPM percentages had higher levels of student punishment, which they defined as any incidence of in- or out-of-school suspension or placement change. In contrast, Skiba et al. (2014) used a hierarchical linear modeling approach to investigate the contributions of school-level predictors including poverty on exclusionary discipline approaches for 43,320 students in 730 schools in one Midwestern state. In their sample, there was no relationship between school poverty level and suspension rates. However, a relationship existed between school poverty level and expulsion rates; schools with lower poverty reported higher expulsion rates. Whereas these studies examined exclusionary discipline regardless of infraction, the present study is concerned only with exclusionary discipline for students who received a threat assessment.

Implications and future research

The results of the present statewide study contribute to school safety policy and practice. Our findings suggest that, across both threat assessment approaches, most threats can be resolved without the use of exclusionary discipline. In the present study, less than 50% of all threats made in schools using threat assessment resulted in an exclusionary discipline sanction. Using a threat assessment approach affords school officials the capacity to take into account the circumstances and context in which the student made the threat in determining the appropriate action to take in response (e.g., Cornell & Sheras, 2006; NTAC, 2018). Therefore, given the national concern about the negative outcomes associated with exclusionary discipline (APA Task Force, 2008; Morgan et al., 2014), school officials and policy makers should continue to support the implementation of threat assessment in schools, which provides an alternative approach to zero tolerance practices.

The present retrospective quasi-experimental study does not permit causal inferences. Under ideal circumstances, schools would be randomly assigned to use different models of threat assessment and a pre/posttest experimental design used; however, that was not feasible in the present study. Prospective, randomized controlled studies would be useful to provide stronger evidence in support of these findings. It is possible that the threat assessment team members had preexisting differences in their school discipline practices that explain differences in threat assessment outcomes. However,

the decision to adopt a threat assessment model was made at a division-wide administrative level and not by the individual school principals and staff who implemented the threat assessments. Despite this limitation, these results are consistent with previous studies that found positive disciplinary outcomes for schools using CSTAG (e.g., Cornell et al., 2011, 2012; Nekvasil & Cornell, 2015).

The STOP School Violence Act is providing funding for thousands of schools nationwide to receive threat assessment training (https://www.congress.gov/bill/115th-congress/house-bill/4909/text?format=txt). There is a need for research on these schools to assess how the training affects staff attitudes and beliefs about school discipline and school safety, and to measure the effects of training on threat assessment practices and student disciplinary outcomes. CSTAG is the only threat assessment model that has been subject to controlled studies, so that there is a general need for research on different models of threat assessment and how differences in these models affect school safety and student outcomes.

Understanding the differences between threat assessment models in terms of training outcomes and responses to threats may provide an explanation for the differences noted between CSTAG and non-CSTAG schools in the present study. However, the present study did not assess team determinations of the seriousness of a threat or referrals for mental health services. The study was not able to examine long-term effects on both students and school climate. Qualitative studies to determine how CSTAG teams reach decisions about the nature and seriousness of a threat, especially the process that leads to disciplinary responses would be helpful. However, the lower rates in suspension, expulsion, and law enforcement action were present in CSTAG schools without researcher involvement, which supports the scalability of CSTAG use in schools. Studies to ascertain the levels of fidelity and consistency in implementation of the CSTAG model and other models are needed. Overall, though these results indicate that the CSTAG model of threat assessment provides school policy makers with an alternative discipline approach to zero tolerance that both mitigates threats of violence in schools while reducing reliance on exclusionary discipline.

Note

1. We recently completed this same analysis using propensity score matched groups and obtained the same pattern of statistically significant findings. These results are available upon request.

Disclosure statement

Cornell discloses that he is the primary developer of the *Virginia Student Threat Assessment Guidelines* and author of the *Comprehensive School Threat Assessment Guidelines*.

Funding

This project was supported by Grant NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice, and conducted in collaboration with the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services.

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PREVENTION V. PUNISHMENT:

Threat Assessment, School Suspensions, and Racial Disparities

JustChildren

A Program of the Legal Aid Justice Center

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December 18, 2013

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Acknowledgements

We thank the Open Society Foundations and the Discipline Disparities Research to Practice Collaborative convened by the Equity Project at Indiana University for financial support of this project. We thank Cynthia Cave and colleagues at the Virginia Department of Education, and Donna Michaelis and colleagues at the Virginia Department of Criminal Justice Services, for providing the data for this project. We also thank Peter Lovegrove, Anna Heilbrun, and Juliette Berg for their assistance in statistical analyses.

Angela Ciolfi is the attorney responsible for this material. This report does not contain legal advice and should not be used as a substitute for obtaining professional legal advice.

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Prevention v. Punishment

THREAT ASSESSMENT, SCHOOL SUSPENSIONS, AND RACIAL DISPARITIES

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EXECUTIVE SUMMARY

Racial disparities in school discipline today are troubling. Nationally, nearly one third of black male high school and middle school students undergo suspension, while only one in ten white males are suspended. In Virginia, black males are suspended at approximately twice the rate of white males in elementary, middle, and high schools. Black females are suspended at more than twice the rate of white females. There are racial disparities even when controlling for a variety of other factors, such as poverty and delinquency. Because suspension is linked to school dropout and delinquency, reducing disparities in suspension rates could help reduce school dropout and delinquency rates for all students, but especially for black males.

This report presents new evidence that the implementation of Virginia Student Threat Assessment Guidelines (VSTAG) in Virginia public schools is associated with marked reductions in both short-term and long-term school suspensions. Furthermore, use of VSTAG is associated with reductions in the racial disparity in long-term suspensions. Schools using VSTAG have substantially lower rates of school suspensions, especially among black males, who tend to have the highest suspension rates.

In 2013, Virginia became the first state in the country to mandate the formation of threat assessment teams in all its schools. In light of this new data, it is important for schools to take this mandate seriously. In order to reap the benefits of threat assessment, however, it must be carefully implemented and balanced with student rights, all with the goal of improving school safety and climate for everyone. In addition to the seven recommendations found at the end of this report discussing ways for schools and communities to implement threat assessment safely and fairly, we also make the following policy recommendations:

1. The Virginia General Assembly should ensure that sufficient funding is available to provide school employees and law enforcement employees assigned to work in schools training in threat assessment, as well as other interventions that can help reduce suspension rates and improve student behavior.

2. The Virginia Department of Education and The Virginia Department of Criminal Justice Services should draft a model memorandum of understanding between schools and law enforcement for implementing threat assessment procedures and related efforts to maintain school safety.

3. The Virginia Department of Juvenile Justice should collect data on school-based arrests, referrals to law enforcement by schools or school resource officers, and filing of delinquency petitions or criminal complaints based on conduct occurring at school.

4. The General Assembly should require that schools ensure that students who are suspended or expelled continue to make academic progress during periods of disciplinary removal.

I. INTRODUCTION

Following the 1999 shootings at Columbine High School, authorities in law enforcement and education recommended that schools adopt a threat assessment approach rather than a zero tolerance approach to violence prevention.[1] Threat assessment was an unfamiliar concept to educators, so researchers in the Curry School of Education at the University of Virginia took on the challenge of developing a set of model guidelines for K-12 schools. These guidelines allow school-based multidisciplinary teams to evaluate and resolve student threats so that the students can remain in school rather than be suspended.

Over the past ten years, the Virginia Student Threat Assessment Guidelines (VSTAG) have become widely used in Virginia schools as well as schools nationwide. Based on a series of field tests and controlled studies, VSTAG has been recognized as an evidence-based practice in the federal government's National Registry of Evidence-Based Programs and Practices.

In contrast, multiple studies have found that suspension does not improve student behavior or academic performance, and can be regarded as an ineffective practice. For example, one study found that the chances of dropping out of high school double with the first suspension.[2] After controlling for demographics, attendance, and course performance, "each additional suspension further decreases a student's odds of graduating high school by 20%."[3]

In 2013, the Virginia General Assembly passed legislation mandating all Virginia public schools to maintain threat assessment teams. This report describes the impact of VSTAG on suspension rates and makes recommendations for the successful implementation of VSTAG as a model threat assessment program for Virginia schools.

II. THE DETRIMENTAL EFFECTS OF SCHOOL SUSPENSION

Suspensions keep thousands of Virginia's children out of school each year. In 2011-12, there were 181,090 suspensions of students from Virginia schools.[4] Contrary to perception, suspension is not just for dangerous teenagers. In 2011-2012, over 29,600 short-term suspensions were issued to elementary school students.[5] Furthermore, the majority of suspensions in Virginia are not for offenses that threaten the health or safety of other students or staff. In the 2011-2012 school year, 65% of short-term suspensions were for non-violent acts of misconduct, such as defiance, classroom disruption, and use of electronic or cellular phones in school.[6] That same year, 2,012 students were suspended for *more than 10 days* for behavior that did not involve weapons, drugs, or injury or threat to another person.[7]

By the Numbers

In 2011-12, Virginia schools administered:

- 746 expulsions
- 7,825 long-term suspensions or modified expulsions
- 173,265 short-term suspensions

This is a rate of 1,010 suspensions or expulsions per school day.

Source: Virginia Dep't of Education

Suspensions for challenging, non-dangerous behavior may give the classroom a temporary reprieve from disruption, but students seldom return repentant and ready to learn. To the contrary, a suspension can accelerate a downward spiral of academic failure, missed instructional time, and continued acting out in order to mask failure and avoid schoolwork that is too difficult. If it were true that school suspension motivates students to improve their behavior and sends a constructive message to classmates, schools that use suspension more often should produce higher academic performance than schools that make less frequent use of suspension. In fact, several studies have found that, among schools with similar student characteristics, schools with high suspension rates have lower academic achievement.[8]

Not only do suspensions fail to improve student behavior, but today's suspended youth are more likely to become tomorrow's dropouts. In 2011, the Council of State Governments studied suspension in Texas and published *Breaking Schools' Rules*. The findings provide convincing evidence that over-reliance on suspension increases the probability of grade retention, school dropout, and juvenile justice system involvement.[9] Likewise, a study at the University of Virginia's Curry School of Education found that Virginia high schools that use suspension the most have the highest dropout rates, even after controlling for student demographics and attitudes.[10] In other words, suspension does not make schools safer or more orderly. If anything, suspension contributes to higher rates of misbehavior and school failure. As the Virginia Department of Education has concluded, "traditional approaches to student discipline have not been effective in reducing disruptive behavior, vandalism or the dropout rate."[11]

III. RACIAL DISPARITIES IN SCHOOL DISCIPLINE

Across the country, the use of suspension has increased substantially over the last four decades, particularly for students of color. A new study by UCLA's Civil Rights Project documents a dramatic increase in suspension rates for secondary school students since 1972, with a substantially widening gap between black and white students. In the 1972-1973 school year, 6.1% of white students and 11.8% of black students were suspended, a gap of 5.7 percentage points. In 2009-2010, that gap grew to 17.2 percentage points (7.1% white versus 24.3% black). Nationally, the racial gap is highest for black males, who are suspended at a rate of 30% in high school and 31% in middle school, generating gaps of 20 and 21 points, respectively, with white males.[12]

There are large racial disparities between black and white students in both short-term and long-term suspensions in Virginia.[13] Figure 1 below shows that black males are suspended at approximately twice the rate as white males in elementary, middle, and high schools. Black females are suspended at more than twice the rate as white females. These rates are based on 2011-12 unduplicated[14] suspension data for all 1,791 Virginia public schools classified as elementary (or primary), middle, or high schools.[15]

Figure 2 shows equally large racial disparities for long-term suspensions, although it should be noted that long-term suspensions are much less common, and the rate is calculated as the number of suspensions per 1,000 students (the short-term rate is suspensions per 100 students).

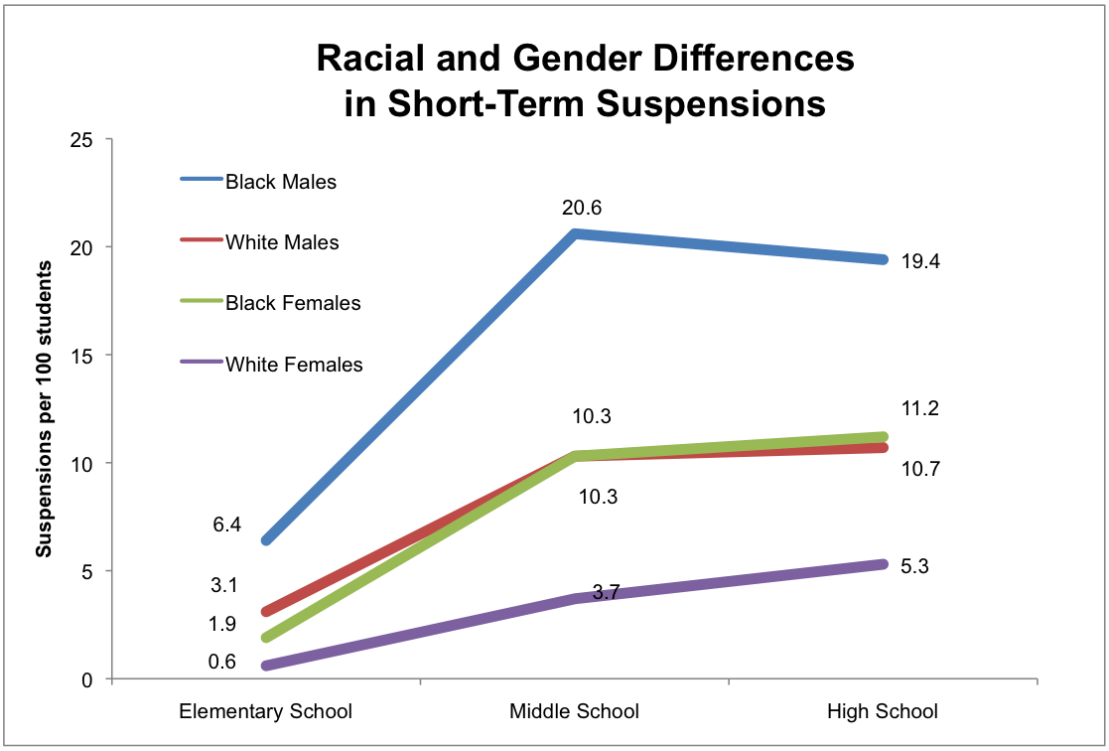


Figure 1

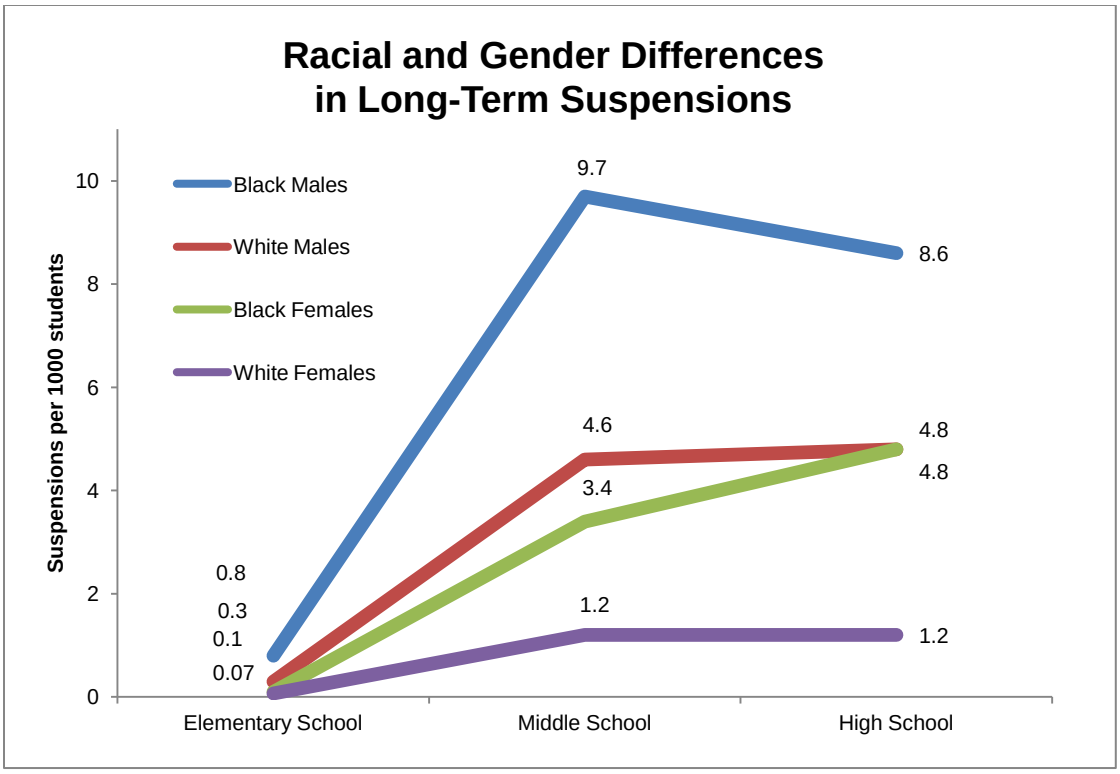


Figure 2

The high rates of suspensions among black students cannot be fully attributed to higher family poverty or to higher rates of serious misbehavior.[16] Nor can their suspension rates be attributed to higher rates of delinquent behavior, such as property crimes, drug sales, or violent behaviors.[17] Instead, several studies have found that high rates of minority suspension are associated with minor, typically more subjective, disciplinary infractions.[18] In other words, most black students are being suspended for relatively minor misbehavior such as being loud or disruptive in class. In Virginia, black students are 67% more likely to be suspended for disruptive or disrespectful offenses than white students.[19]

Studies have found no support for the hypothesis that black students misbehave more often. Instead, research has supported the hypothesis that black students may be victim to more resource inequities than white students. Low-income students of color are more likely to attend schools with lower quality resources and facilities, higher teacher turnover, and a lower percentage of highly qualified teachers. These schools tend to also have a poor school climate. A 2011 study of 199 Virginia high schools found that schools rated by students as having the lowest levels of support and academic expectations had the highest rates of suspension *and* the largest black-white suspension gap.[20] Within these schools, students of color are referred more often and receive more severe punishments for less serious behavior.

IV. CREATING SAFE, FAIR, AND SUPPORTIVE SCHOOLS

School Gun Suspension: 2nd-Grade Boys, Booted for Pointing Pencils, Return to Class

Seven-year old Christopher and his classmate were suspended for making shooting noises while pointing pencils at each other. The boys' horseplay violated Suffolk Public Schools' zero-tolerance ban on weapons.

Source: HuffPost

In order for students to be academically successful, they must be surrounded by a safe and positive learning environment. There is strong evidence that this can be achieved without suspensions or expulsions. Schools should focus on a broader effort to create positive school climates and use alternatives to suspension. Positive Behavioral Interventions and Supports (PBIS),[21] the professional development program My Teaching Partner,[22] and school-based psychosocial violence prevention programs[23] are just a few evidence-based programs that improve student behavior without resorting to suspension. This Report demonstrates that *Virginia Student Threat Assessment Guidelines* is associated with reductions in the racial discipline gap, as well as lower suspension rates overall.

DEALING WITH THREATENING BEHAVIOR: A FOCUS ON STUDENT THREAT ASSESSMENT

Following the 1999 Columbine shooting, reports by the FBI, U.S. Secret Service, and U.S. Department of Education urged schools to refrain from the use of zero tolerance discipline practices. While there is no single definition for zero tolerance discipline policies, it generally refers to the belief that punishment should be given for any rule violation, including minor and unintentional rule violations. For example, one rule might be that students are not allowed to possess any prescription drugs at school, and a student is suspended for having acne medication in her locker.[24] Often, school administrators using a zero tolerance approach are less likely to assess or consider the reasons a student breaks a rule.

Instead of zero tolerance, the U.S. Department of Education has urged schools to adopt a flexible, less punitive approach to violence prevention known in law enforcement as "threat assessment."[25] Although the term "threat assessment" is unfamiliar to most educators, it is a violence prevention strategy that begins with an evaluation of persons who threaten to harm others and is followed by interventions designed to reduce the risk of violence. A key aspect of threat assessment is its emphasis on considering the context and meaning of the student's behavior and taking action that is proportionate to the seriousness of the student's actions. This approach regards a threat as a sign of frustration or conflict that might be amenable to intervention, rather than simply a violation of rules that must be punished.

In the absence of any established approach to threat assessment in schools, a research group at the University of Virginia developed an innovative model, the *Virginia Student Threat Assessment Guidelines* (VSTAG).[26] The Virginia model of threat assessment is an approach to violence prevention that emphasizes early attention to problems such as bullying, teasing, and other forms of student conflict before they escalate into violent behavior. School staff members are encouraged to adopt a flexible, problem-solving approach, as distinguished from a more punitive, zero tolerance approach to student misbehavior. This training is intended to promote broader changes in the nature of staff-student interactions around disciplinary matters and to encourage a more positive school climate in which students feel treated with fairness and respect.

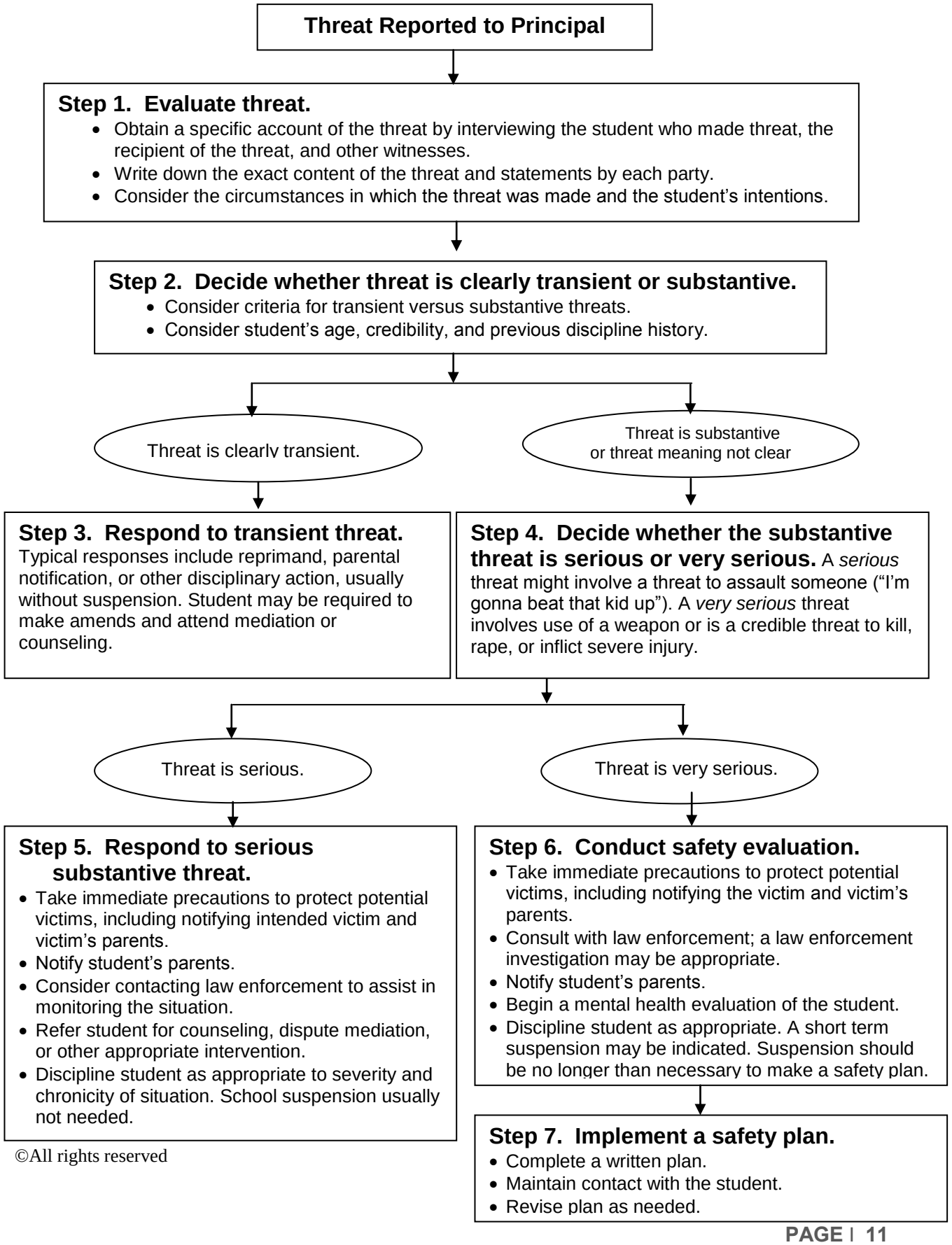
Virginia High School Student Suspended for Spitballs

In 2010, a Virginia high school honors student was suspended for the rest of the school year for blowing plastic spitballs through a hollowed-out pen at people's backpacks during lunch. The student was charged with three counts of assault.

Source: FoxNews.com

The VSTAG uses a decision tree (see Figure A) to guide threat assessment teams through a process of evaluating the seriousness of student threats and taking appropriate action. The threat assessment process places major emphasis on resolving problems and conflicts that stimulated a student's threatening behavior. The process also includes disciplinary consequences for student misbehavior, but discourages the use of school suspension except in the most serious cases. School resource officers serve on threat assessment teams because of their role in school safety and security, and they may conduct law enforcement investigations in cases where there is concern that a student is planning or preparing to carry out a violent crime. However, very few student threat assessments result in an arrest or delinquency charges.

FIGURE A. DECISION TREE FOR STUDENT THREAT ASSESSMENT.



CAN THREAT ASSESSMENT REDUCE RACIAL DISPARITIES?

Every day, teachers and other school personnel make assessments of student behavior and exercise judgment about whether behavior has crossed the line from ordinary horseplay into a disciplinary infraction or threat to safety. This ability to properly assess student behavior has historically been based on the teacher's and administrator's knowledge of the student. But with school budget cuts, increased class sizes, and growing administrative duties, the ability of teachers and administrators to develop personal relationships with students has dwindled. One study has concluded that the discipline gap exists because teachers and administrators are often less familiar with their minority students, less trusting or sympathetic in their view of them, and sometimes more concerned about their behavior.[27] Threat assessments place emphasis on gathering information and evaluating the context and motive for the student's behavior, and thus, could make a difference in the suspension and expulsion rates of black students.

In two controlled studies, University of Virginia researchers found that Virginia schools using the VSTAG were less likely than non-VSTAG schools to suspend a student for making a threat[28] and showed reductions in annual schoolwide suspension rates.[29] A statewide analysis of 1,795 schools[30] found that use of VSTAG was associated with greater reductions in suspensions.[31]

In this new study, University of Virginia researchers examined 2011-2012 student-level suspension data for 663 secondary (middle, high, or combined) schools. Short-term and long-term suspension rates (unduplicated[32] counts of students) were compared for schools using the Virginia model (VSTAG) versus all other schools, based on reports by school principals on the 2011-2012 Virginia School Safety Audit. These analyses controlled for school differences in enrollment size and percentage of students receiving free or reduced price meals. In other words, all of the suspension rates are adjusted for the statistical effects due to the size of the school or the poverty level of the student body.[33]

This new analysis by University of Virginia researchers found that secondary schools using the Virginia threat assessment model had lower rates of both short-term and long-term suspensions than other schools, which typically rely on a zero tolerance approach. As shown in Figure 3, schools using the Virginia model had 9.2 short-term suspensions/100 students in contrast to 10.8 short-term suspensions/100 students in schools not using the model. This represents a difference of approximately 15%. For long-term suspensions, the contrast was 3.6 suspensions/1,000 students among schools using the threat assessment model versus 4.8 among schools not using the model, a difference of approximately 25%. To put these results in perspective, a decrease of 15% for the 62,942 students in our data set who received one or more short-term suspensions in Virginia secondary schools would mean 9,441 fewer students would receive short-term suspensions. A decrease of 25% for the 3,060 students in our data set who received long-term suspensions would mean 765 fewer students would receive long-term suspensions.

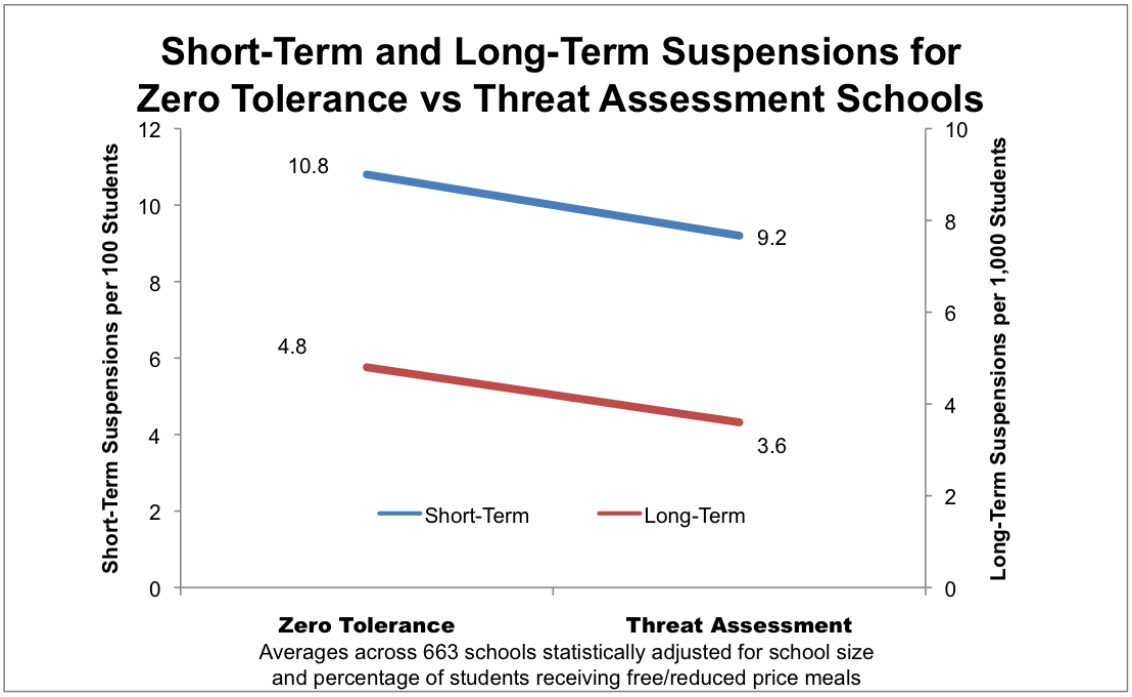


Figure 3

An additional series of analyses examined the suspension rates for subgroups of black and white males and females. As shown in Figure 4, short-term suspensions were lower in schools using the Virginia model for all four race-by-gender groups. The lower rates for white males, black females, and white females were statistically significant, but the lower rate for black males fell short of statistical significance (p = .075).

For long-term suspensions, the rates were lower for all four groups, too, but only the lower rate for black males was statistically significant (see Figure 5).

The racial disparity in suspension rates for black and white students can be gauged as the difference between the two groups. For short-term suspensions, the racial disparity is similar in the two groups of schools for both males and females, although the overall levels of suspension are reduced. In the case of long-term suspensions, however, the disparity between white and black males is notably lower in schools using the Virginia threat assessment model. In schools using the Virginia model, the disparity between white and black males is 3.3 percentage points (7.6 – 4.3) versus 6.1 percentage points (11.2 – 5.1) in zero tolerance schools not using the model. The difference between 3.3 and 6.1 is statistically significant (p = .04).

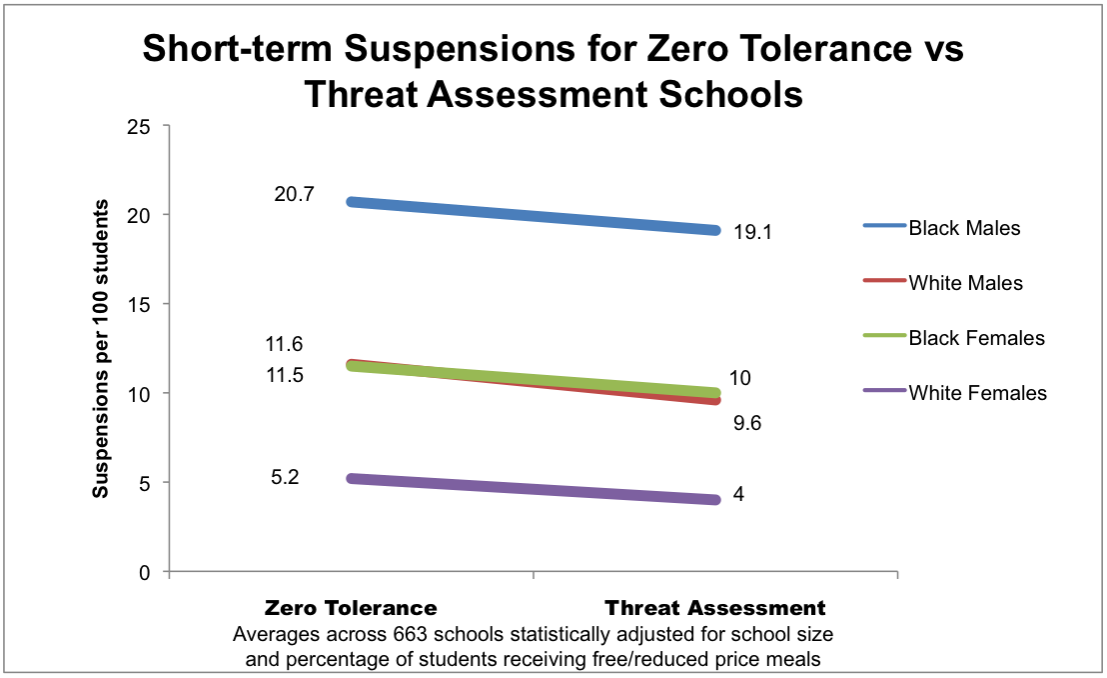


Figure 4

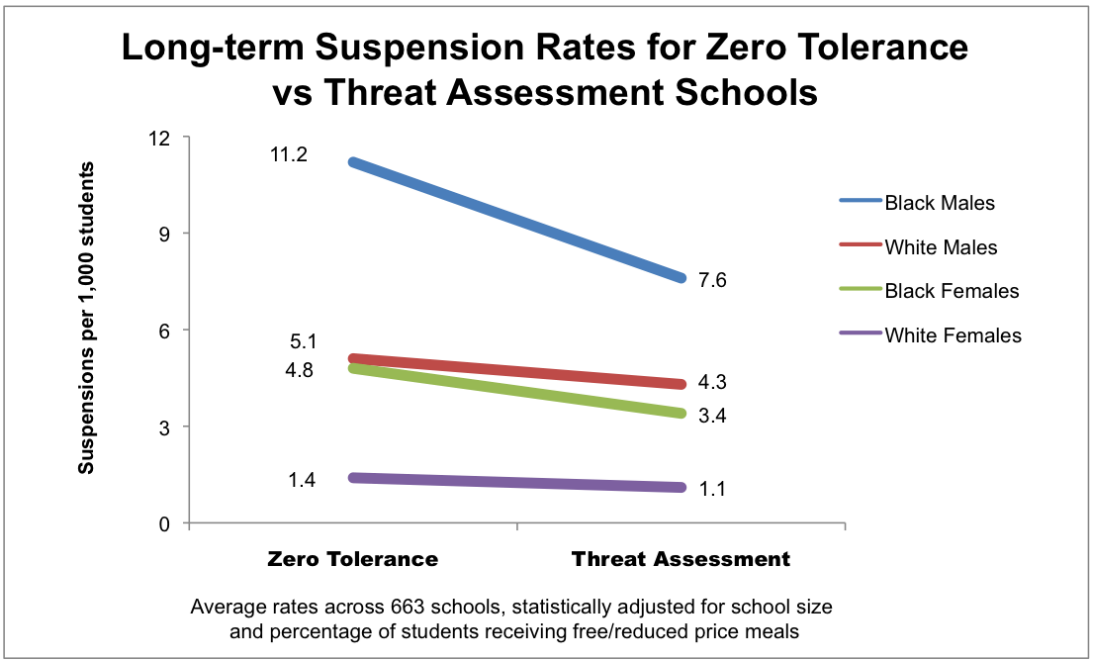


Figure 5

V. RECOMMENDATIONS FOR USING THREAT ASSESSMENT SAFELY AND FAIRLY

There are good reasons to believe that our schools are quite safe. Since 1993, only 2% of all youth homicides have occurred in schools.[34] And in the past thirty years, only 2 homicides have occurred at Virginia primary and secondary schools.[35] Children are safer from serious violent crime in schools than almost any other place, including their homes.[36] The challenge for school leaders is to maintain the safety of Virginia schools without over-reacting or under-reacting to student threats of violence.

This year, in response to the tragic shootings at Sandy Hook Elementary, Virginia became the first state in the country to mandate the formation of threat assessment teams in all its schools. Currently, over 1,000 of Virginia's schools are using the *Virginia Student Threat Assessment Guidelines* (VSTAG).

Our research has shown that schools implementing the Virginia model tend to have lower suspension rates and, for long-term suspensions, narrower racial discipline gaps. In order to reap the benefits of threat assessment, however, it must be carefully implemented and balanced with student rights, all with the goal of improving school safety and climate for everyone. We have seven recommendations for how to implement threat assessment safely and fairly.

1. Don't overreact.

Most threats are transient ones that are not serious and can be quickly resolved.[37] Transient threats may be rhetorical remarks or expressions of anger (such as "I could strangle you for that") that do not express a genuine, sustained intent to harm. Pointing a pencil like a gun would be an obvious example of a transient threat. At worst, transient threats express temporary feelings of anger or frustration that can be resolved on the scene or in the counselor's office.

It is not necessary to take special safety precautions when responding to transient threats. School personnel should ensure that these threats are resolved through explanations and apologies. Where appropriate, counseling and education can be provided. School counselors routinely help students to resolve conflicts and find more appropriate ways to express their feelings.

Students do not have to be suspended for making a threatening statement. Many threats can be resolved without suspension. If the student responds positively to the initial intervention (*i.e.* calms down and apologizes), the threat can be resolved, and the process ends. More than two-thirds of threats are resolved in this efficient manner.

Substantive threats, on the other hand, express intent to physically injure someone beyond the immediate situation. In this situation, there is at least some risk the student will carry out the threat. Substantive threats require the school to take some protective action, including

cautioning the student about the consequences of carrying out the threat, providing supervision so that the threat is not carried out at school, and calling the student's parents or caretakers so that they can assume responsibility for the student after school. A typical case might be one student threatening to fight another.

For very serious substantive threats, such as threats to shoot or kill someone, there are some additional steps under the model. *It is important to note that very few threats reach this level.* The first additional step is to conduct a more comprehensive evaluation of the student, including a mental health assessment to recommend strategies to address the problem or conflict underlying the threat. Students who make very serious threats may be depressed or experiencing emotional difficulties that require attention. They may be victims of bullying or embroiled in some other conflict or problem they cannot resolve. School mental health staff members are there to help. The team will identify appropriate interventions for the student, such as counseling or dispute mediation.

When dealing with very serious substantive threats, which are rare, the threat assessment model recommends a series of responses. Schools should take precautions to protect the potential victims, which usually includes notifying the intended victim and victim's parents, as well as the student's parents. Schools should avoid provocative responses and strive to de-escalate tense or stressful situations. As the Virginia Department of Criminal Justice Services advises, "actions that intimidate, threaten, or humiliate the subject can provoke the individual and lead to undesirable consequences."[38] In the most serious cases, the school resource officer may undertake a law enforcement investigation to determine whether a student has acquired weapons or taken other concrete steps to carry out a serious act of violence. The officer may provide increased security if there is heightened concern about a potential act of violence. In the vast majority of threat cases, there is no need for an arrest or juvenile court charges, but the availability of a law enforcement officer allows the team to address the full range of possible circumstances. Based on all of the information gathered in a threat assessment, the team formulates a plan to resolve the threatening situation and help the student continue his or her education. Research with the Virginia model has shown that almost all students can continue in their original school, and relatively few cases require school transfer.

2. Protect confidential student information.

There are various laws regarding the confidentiality of educational and medical records. A school's authority to release information about a student is governed by The Family Educational Rights and Privacy Act (FERPA). Under FERPA, a school is required to provide certain privacy protections for education records it maintains. Under FERPA, a school may not disclose personally identifiable information from a student's education records to a third party unless the student or a parent has provided written consent.[39] Students have the right to file a complaint against a school that has failed to comply with FERPA.[40]

FERPA does contain a "health and safety" exception that allows schools to share information from a student's education records without consent. FERPA provides that schools "may disclose personally identifiable information from an education record to appropriate parties, including parents of an eligible student, in connection with an emergency if knowledge of that information is necessary to protect the health or safety of the student or other individuals."[41] According to the U.S. Department of Education and U.S. Secret Service, "schools must define the term 'health and safety emergency' narrowly, and are permitted to disclose information from education records only to those individuals who need the information in order to protect the student and others."[42] The U.S. Department of Education further advises that this "exception is limited to the period of the emergency and generally does not allow for a blanket release of personally identifiable information from a student's education records."[43]

In addition, the Health Insurance Portability and Accountability Act (HIPAA) guarantees the privacy of medical records. Under HIPAA, identifiable medical information cannot be disclosed without the consent of the individual unless disclosure is expressly permitted by HIPAA. Generally under HIPAA, before anyone can access psychological records, informed consent is required.[44] There is, however, a health and safety exception for consent in situations where uses and disclosures are allowed to avert a serious threat to the health or safety of a person or the public.[45] Virginia law also protects confidential medical records.[46] Like HIPAA, Virginia law contains exceptions to the consent requirement, such as in circumstances where there is a serious threat to the health or safety of the individual, others, or the public.[47]

Threat assessment teams potentially have access to a student's intimate health and mental health records contained in the student's school records. Because threat assessment teams can include members who are not school staff (*e.g.,* school resource officers), it is important that schools understand their legal obligations to protect students' confidential records. School divisions should make sure that employees understand when the "health and safety" exception to FERPA's privacy protections permits them to give outside law enforcement access to personally identifiable information from students' education records.[48] In addition to protecting students' confidential records for legal reasons, threat assessment teams must consider how the sharing of private information will affect students' relationships with school staff. If students know their private conversations will be shared with others, this may have a chilling effect on students' willingness to consult with trusted staff members when they are having difficulties. Sharing of information may also result in students being less candid when speaking to service providers in schools.

3. Clarify the role of law enforcement and use court referrals only as a last resort.

It is important to clarify the role of law enforcement officers on the threat assessment team. There are a number of important legal and policy questions that schools should consider and address through policy, procedures, and training.

First, when *may* schools give law enforcement access to a student's education records? Different rules apply to security personnel employed by the school division. FERPA allows school districts to designate employees, usually security staff, as "law enforcement units."[49] Like any other school employees, "law enforcement units" employed by the school may have access to student records if they have a "legitimate educational interest."[50] Schools must provide parents with written notice which employees serve as "law enforcement units."[51] The privacy rules governing disclosure to non-school employees (e.g., school resource officers) was discussed thoroughly in the previous section.

Second, when *must* schools report incidents to law enforcement? There are certain instances of serious school misconduct that the principal of a school must immediately report to local law enforcement.[52] However, the Virginia General Assembly recently amended Virginia Code § 22.1-279.3:1 to clarify that the law enforcement reporting requirement does not require that formal charges be filed. The amendment invites schools and law enforcement to work together to deal with low-level offenses informally through graduated sanctions and educational programming and without the filing of a formal delinquency petition.

Third, when *should* threat assessment teams report incidents to law enforcement? Threat assessment teams may decide to consult with law enforcement officers assigned to work at their schools for threats or actions that fall outside of the enumerated offenses listed in the above statute. However, arrests and court involvement should be regarded as a last resort because of the potential for negative effects on students. A 2006 study of national data found that court involvement was associated with a detrimental effect on educational outcomes, particularly for youth with a low level of delinquency.[53] "Arrest doubles the probability of [high school] dropout even when controlling for arrest expectations, college expectations, prior and concurrent delinquency, grade retention, school suspension, middle school grade point average, and a number of demographic factors."[54] A more recent study found that "[a]mong Chicago adolescents otherwise equivalent on pre-arrest characteristics, 73% of those arrested later dropped out of high school compared with 51% of those not arrested, a substantial difference of 22 percent."[55] The authors concluded that the process that leads to dropping out is adversely influenced by institutional responses, and not just by individual propensity for misbehavior and academic failure.[56]

School divisions should address these issues in a memorandum of understanding (MOU) with local law enforcement agencies that provide officers assigned to work in their schools. The MOU should address what actions will trigger police involvement and risk of arrest. When negotiating MOUs, communities should consider designing a system to divert low-level offenses from juvenile court to workshops or mediation. Such approaches have been successful in reducing school-based referrals to juvenile court.[57] Communities should also make sure that school resource and security officers receive training on the following items:

1) adolescent development and psychology;
2) strategies for diffusing potentially volatile situations;
3) recognizing symptoms of trauma and abuse (and related behaviors) in children and adolescents,
4) recognizing manifestations of students' disabilities;
5) evidence-based programs for improving school climate; and
6) the short-term and long-term effects of court involvement on the likelihood of recidivism and disengagement from school.[58]

Finally, schools should consider including school resource and security officers in any training on programs designed to improve school climate, including trauma-sensitive approaches, restorative justice, Positive Behavioral Interventions and Supports (PBIS), and, of course, threat assessment.[59]

4. Protect student rights.

All students are entitled to certain due process protections – namely the right to notice, a hearing, and an opportunity to appeal – before educational services are removed.[60] In *Goss v. Lopez*, the United States Supreme Court held that public education is a property interest protected by the Due Process Clause of the U.S. Constitution.[61] "At the very minimum, therefore, students facing suspension and the consequent interference with a protected property interest must be given *some* kind of notice and afforded some kind of hearing."[62]

The Virginia Code authorizes schools to suspend or expel students for "sufficient cause."[63] There are three ways schools in Virginia may discipline students by exclusion. Schools could impose a short-term suspension, which is any suspension for ten days or fewer. Schools can impose a long-term suspension, which is anywhere between 11 and 364 days. Schools can also impose an expulsion, which is for 365 days.

When implementing threat assessments, schools should keep students' rights in mind. Schools are not permitted to issue informal suspensions by sending students home without providing due process. Schools are also not permitted to tell a parent that a child is suspended indefinitely until he or she receives a threat assessment. For cases involving very serious substantive threats, schools may consider short-term suspensions or other alternative educational options for the purpose of assessing an imminent threat. However, schools must follow statutory procedures when imposing suspensions. The specific procedures vary depending on the length of the suspension, but they always include written notice (or oral notice for short-term suspensions) of the disciplinary charges, an opportunity to present the student's version of what occurred, and notice of the right to appeal to the superintendent or school board. During a suspension, a school should continue the threat assessment process with the goal of

developing a plan for the student's return to school or the continuation of educational services in an appropriate environment.

In Virginia, schools always have the option to keep a student in school. Local school boards are authorized – and in most cases they are required – to consider a set of factors or "special circumstances" before suspending or expelling the student.[64] Even in cases of drugs or firearms, the presumption of expulsion may be rebutted by considering special circumstances. The school board always has the discretion to recommend a reduced punishment, or to permit the student to attend an alternative school or program.[65]

In Virginia, except in cases of drugs and firearms, a decision to expel a student must be based on the following:

1. The nature and seriousness of the violation;
2. The degree of danger to the school;
3. The student's disciplinary history;
4. The appropriateness and availability of alternative education;
5. The student's age and grade level;
6. The results of any mental health, substance abuse, or special education assessments;
7. The student's attendance and academic records; and
8. Such other matters as deemed appropriate.

Virginia Code Ann. § 22.1-277.06.

Children with disabilities receive extra protections when the school seeks to suspend or expel them, or to change their placements. If a school proposes to suspend a student with a disability for more than ten school days, it must first determine whether the conduct was a "manifestation" of the student's disability. (That is, whether the behavior was caused by, or substantially and directly related to the child's disability, or whether the incident was the direct result of the school's failure to provide the child with services in his or her Individualized Education Program or IEP.)[66] If the behavior is a manifestation of the child's disability, then the child cannot be suspended or expelled and must be returned to the student's original placement. If the behavior is not a manifestation, then the child can be suspended or expelled, but the school must continue to provide a free and appropriate public education.[67]

School leaders should ensure that these procedures are followed when conducting a threat assessment for a student with a disability. If a student with a disability makes a substantive threat, schools should consider convening a meeting of the student's Individualized Education Program Team to discuss whether the student needs additional supports or services, and to revise the IEP accordingly. Schools may not attempt to resolve perceived threats by unilaterally changing the frequency, duration, intensity, or placement of the special education and related services provided pursuant to the student's IEP.[68]

A school may remove a student with a disability from the current educational placement and place the child in an interim alternative educational setting for no more than 45 days without regard for whether the child's behavior was a manifestation of his or her disability under three specific circumstances.[69] A school may do so if while at school, on school premises, or at a school function, a child (1) carries or possesses a dangerous weapon capable of causing death or serious bodily injury; (2) knowingly possesses or uses drugs, or sells or solicits the sale of controlled substances; or (3) inflicts serious bodily injury upon another person.[70] "Serious bodily injury" means "bodily injury that involves substantial risk of death, extreme physical pain, protracted and obvious disfigurement, or protracted loss or impairment of the function of a bodily member, organ or mental faculty."[71] Even in these serious circumstances, a free and appropriate education must be provided to the student with a disability who is removed to an interim alternative educational setting.

5. Remember that a public education must be free to all.

Schools may not require parents to pay for private evaluations or private treatment services as conditions of re-enrollment. Requiring parents to pay for a private assessment is a violation of the Virginia Constitution's guarantee that a free public education is available to all children of school age in the Commonwealth. Further, an Attorney General's opinion states that school boards may not impose fees as a condition of continued school enrollment.[72] (Specifically, a school board was not permitted to require a student to pay for substance abuse counseling services as a condition of continued enrollment.[73]) It is the parents' prerogative to secure private evaluations for their children and release those evaluations to the school for consideration in the school's threat assessment process. However, it is improper for schools to require parents to obtain a private evaluation of a student at the family's expense.

6. Conduct threat assessments promptly.

When a student is identified as making a threat of violence, the school must be prepared to conduct a threat assessment in a prompt and timely manner. A delay in completing a threat assessment may expose others to harm if the threat is carried out. Another concern is that a student's education may be disrupted while waiting for an evaluation to be completed. A benefit of the University of Virginia threat assessment model is that trained school personnel can resolve most threats promptly and efficiently without school suspension. More serious and complex cases can often be resolved in a few days and do not require a long-term suspension. Students should not be required to spend weeks or months out of school while awaiting a threat assessment.

7. Implement effective long-term solutions.

If we want schools to be truly safe, and not just create the appearance of safety, we should invest in evidence-based practices for reducing school violence. According to the FBI, the U.S.

Secret Service, and other authorities on violence prevention, "the most effective way to prevent many acts of violence targeted at schools is by maintaining close communication and trust with students and others in the community."[74] In order to accomplish this goal, we should support schools in creating and implementing a positive school climate. Research in Virginia secondary schools has demonstrated that schools characterized by an authoritative school climate – one that has both strict-but-fair discipline and supportive staff-student relationships – have lower rates of student aggression and misbehavior, more respectful behavior toward teachers, and fewer discipline problems resulting in school suspension.[75] Furthermore, in supportive school climates students are more willing to seek help when a classmate threatens violence or brings a weapon to school.[76]

When confronted with a student who has made a threat, professionals often resort to school suspension. However, the U.S. Secret Service and Department of Education caution that suspension may not be the best course of action for the longer term and advise threat managers to consider the most effective and least damaging course of action.[77] "Those with the responsibility to manage a student assessed as posing a threat of targeted violence should consider options for the long term management of threatening situations in the context of the primary goal of prevention. The response with the greatest punitive power may or may not have the greatest preventative power."[78]

VI. POLICY RECOMMENDATIONS

1. The Virginia General Assembly should ensure that sufficient funding is available to provide school employees and law enforcement employees assigned to work in schools training in threat assessment, as well as other interventions that can help reduce suspension rates and improve student behavior. Examples of other interventions include Positive Behavioral Interventions and Supports (PBIS), trauma-informed intervention, and restorative justice.

2. The Virginia Department of Education and The Virginia Department of Criminal Justice Services should draft a model memorandum of understanding (MOU) between schools and law enforcement for implementing threat assessment procedures and related efforts to maintain school safety. The model MOU should describe the relationship between the school and law enforcement, how law enforcement will be incorporated into the schools' threat assessment teams and related efforts to improve climate (including diversion of low-level offenses), how training will be delivered, and how information will be shared while protecting the confidentiality of student information.

3. The Virginia Department of Juvenile Justice should collect data on school-based arrests, referrals to law enforcement by schools or school resource officers, and filing of delinquency petitions or criminal complaints based on conduct occurring at school. The data should be

disaggregated and summarized for the public by school, charge, arresting agency, gender, age, race/ethnicity, disability and English proficiency status.

4. The General Assembly should require that schools ensure that students who are suspended or expelled continue to make academic progress during periods of disciplinary removal, albeit in another educational setting if necessary.

CONCLUSION

By properly implementing threat assessment protocols, investing in promising violence prevention programs like restorative justice, and expanding Positive Behavioral Interventions and Supports,[79] Virginia can reduce school violence and give students the resources and support they need to be successful.

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[2] Robert Balfanz, et al., *Sent Home and Put Off-Track: The Antecedents, Disproportionalities, and the Consequences of Being Suspended in the Ninth Grade*, 8 (Dec. 21, 2012).
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[11] H. Douglas Cox, *Report on the Department of Education's Effective Schoolwide Discipline* Initiative, Presentation at the Va. Bd. of Educ. Meeting (Oct. 27, 2011), available at http://www.doe.virginia.gov/boe/meetings/2011/10_oct/agenda_items/item_k.pdf (last visited Dec. 1, 2013).
[12] Dan Losen & Tia Elena Martinez, *Out of School & Off Track: The Overuse of Suspensions in American Middle and High Schools*, The Center for Civil Rights Remedies at UCLA's Civil Rights Project (2013), available at http://civilrightsproject.ucla.edu/resources/projects/center-for-civil-rights-remedies/school-to-prison-folder/federal-reports/out-of-school-and-off-track-the-overuse-of-suspensions-in-american-middle-and-high-schools/OutofSchool-OffTrack_UCLA_4-8.pdf.
[13] In Virginia, school suspensions of 1-10 days are classified as short-term, and suspensions for more than 10 days are classified as long-term. Readers will observe that suspension rates are comparable in middle and high schools, but much lower in elementary schools. For this reason, subsequent analyses focused on the combined group of middle and high schools, referred to as secondary schools.
[14] Unduplicated means each student is counted only one time in our analyses. This means the students in our data sets are suspended one *or more* times.
[15] Data provided to Dr. Cornell by the Virginia Department of Education (2013).
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[19] Anna Heilbrun, et al., *Principal Attitudes Regarding Zero Tolerance and Racial Disparities in School Suspensions*, Presented at the American Psychological Association Annual Convention, Honolulu, Hawaii (2013).
[20] Anne Gregory, Ph.D, et al., *The Relationship of School Structure and Support to Suspension Rates for Black and White High School Students*, 48 American Educational Research Journal 904-934 (2011).
[21] From 2007-2011, Virginia schools implementing the state's PBIS program have decreased office discipline referrals by 29% for general education students and 51% for special education students; decreased in-school suspensions by 45% for general education students and 65% for special education students; decreased out-of-school suspensions by 75% for general education students and 86% for special education students; and saved 9.2 hours of administrative time and 4.6 hours of instructional time weekly (data provided by the Virginia Department of Education).
[22] Evidence shows My Teaching Partner has increased student performance on standardized tests across racial groups and increased positive student engagement and peer interactions. Statistically, studies have also shown that implementation of My Teaching Partner eradicated the discipline gap between African American and white students, compared to a control classroom where African American students were twice as likely to be suspended than white students. *See* Anne Gregory, et al., *The Promise of a Teacher Professional Development Program in Reducing the Racial Disparity in Classroom Exclusionary Discipline*, chapter in Closing the Discipline Gap, Teachers College Press (2014), chapter available at http://civilrightsproject.ucla.edu/resources/projects/center-for-civil-rights-remedies/school-to-prison-folder/state-reports/the-promise-of-a-teacher-professional-development-program-in-reducing-the-racial-disparity-in-classroom-exclusionary-discipline/gregory-teacher-development-ccrr-conf-2013.pdf.
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[33] Technical details of the statistical analyses are available from Dr. Cornell.
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[35] National School Safety Center, *School Associated Violent Deaths* (Mar. 2010), available at http://www.schoolsafety.us/media-resources/school-associated-violent-deaths.
[36] Interdisciplinary Group on Preventing School and Community Violence, *A Call for More Effective Prevention of Violence* (Dec. 19, 2012), available at http://curry.virginia.edu/articles/sandyhookshooting.
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[45] 45 C.F.R. § 164.512(j)(1).
[46] VA. CODE ANN. §32.1-127.1:03 et seq.

[47] VA. CODE ANN. §32.1-127.1:03(D)(6). *See also* VA. CODE ANN. §54.1-2400.1(B) ("A mental health service provider has a duty to take precautions to protect third parties from violent behavior or other serious harm only when the client has orally, in writing, or via sign language, communicated to the provider a specific and immediate threat to cause serious bodily injury or death to an identified or readily identifiable person…if the provider reasonably believes, or should believe according to the standards of his profession, that the client has the intent and ability to carry out that threat immediately or imminently…The duty to protect does not attach unless the threat has been communicated to the provider by the threatening client while the provider is engaged in his professional duties.")
[48] FERPA does not prohibit disclosure to authorities of information obtained through the employee's personal knowledge or observation.
[49] *See* 34 C.F.R. § 99.8.
[50] *See* 34 C.F.R. § 99.31; *see also* U.S. Dep't of Educ., *Balancing Student Privacy and School Safety: A Guide to the Family Educational Rights and Privacy Act for Elementary and Secondary Schools* (Oct. 2007), available at http://www2.ed.gov/policy/gen/guid/fpco/brochures/elsec.pdf.
[51] U.S. Dep't of Educ., *Balancing Student Privacy and School Safety: A Guide to the Family Educational Rights and Privacy Act for Elementary and Secondary Schools* (Oct. 2007), available at http://www2.ed.gov/policy/gen/guid/fpco/brochures/elsec.pdf.
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[71] 34 C.F.R. § 300.530(i)(3); 8VAC20-81-10.
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[74] Interdisciplinary Group on Preventing School and Community Violence, *A Call for More Effective Prevention of Violence* (Dec 19, 2012), available at http://curry.virginia.edu/articles/sandyhookshooting.
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[79] H. Douglas Cox, *Report on the Department of Education's Effective Schoolwide Discipline* Initiative, Presentation at the Va. Bd. of Educ. Meeting (Oct. 27, 2011), available at http://www.doe.virginia.gov/boe/meetings/2011/10_oct/agenda_items/item_k.pdf (last visited Dec. 1, 2013).

School Psychology Review
2018, Volume 47, No. 2, pp. 183–195
DOI: 10.17105/SPR-2017-0030.V47-2

Racial/Ethnic Parity in Disciplinary Consequences Using Student Threat Assessment

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Abstract. School psychologists are frequently called upon to assess students who have made verbal or behavioral threats of violence against others, a practice commonly known as threat assessment. One critical issue is whether the outcomes of a threat assessment generate the kind of racial disparities widely observed in school disciplinary practices. In 2013, Virginia became the first state to mandate threat assessment teams in all public schools. This study examined the disciplinary consequences for 1,836 students who received a threat assessment in 779 Virginia elementary, middle, and high schools during the 2014–2015 school year. Multilevel logistic regression models found no disparities among Black, Hispanic, and White students in out-of-school suspensions, school transfers, or legal actions. The most consistent predictors of disciplinary consequences were the student's possession of a weapon and the team classification of the threat as serious. We discuss possible explanations for the absence of racial/ethnic disparities in threat assessment outcomes and cautiously suggest that the threat assessment process may reflect a generalizable pathway for achieving parity in school discipline.

Keywords: threat assessment, school safety, racial disparity, school discipline

School psychologists are frequently called upon to assess the risk of violence in students who have made verbal or behavioral threats against others, a practice that has become commonly known as threat assessment (National Association of School Psychologists School Safety and Crisis Response Committee, 2014). Threat assessment is a systematic process of evaluation and intervention for those students who have threatened others with violence. School psychologists may be asked to assess whether a student poses a serious risk of violence and to recommend appropriate safety precautions or protective actions.

A series of school shootings in the 1990s brought great public attention to the issue of school violence and stimulated the widespread use of zero tolerance policies that used exclusionary discipline for a wide variety of infractions (American Psychological Association [APA] Zero Tolerance Task Force, 2008; Borum, Cornell, Modzeleski, & Jimerson, 2010). The zero tolerance philosophy mandates strict enforcement and

Author Note. We thank members of our research team including Anna Grace Burnette, Pooja Datta, Anna Heilbrun, Yuane Jia, and Patrick Meyer. The project was conducted in cooperation with the Virginia Department of Criminal Justice Services. This project was supported in part by Grant #NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Virginia Department of Criminal Justice Services. The principal author of this report (Cornell) is the primary developer of the Virginia Student Threat Assessment Guidelines (VSTAG), one of the threat assessment models used in Virginia schools.

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 ISSN 0279-6015, eISSN 2372-966x

harsh consequences for even minor violations of school rules as a way to send a compelling message to students with the intention of deterring dangerous behavior. Under zero tolerance, students have been suspended for minor behaviors posing little threat of violence, such as bringing a plastic knife to school, threatening to shoot someone with a pencil, or even pointing a finger like a gun (Cornell, 2006; Gora, 2015). However, there is little or no evidence that zero tolerance is effective (APA Zero Tolerance Task Force, 2008); on the contrary, education authorities have criticized zero tolerance practices as fueling a nationwide increase in school suspensions (Losen & Martinez, 2013; Morgan, Salomen, Plotkin, & Cohen, 2014).

Racial and ethnic disparity in school discipline is a widely recognized national problem (Losen, 2015; Morgan et al., 2014; U.S. Department of Education [DOE], 2016). Racial/ethnic minority students, especially Black students, are disproportionately more likely than White students to receive out-of-school suspensions, expulsions, and other forms of exclusionary discipline (Losen & Martinez, 2013; Skiba et al., 2011; U.S. DOE, Office for Civil Rights, 2016). There is mixed evidence regarding the disproportionate punishment of Hispanic students, although it remains a serious concern (Losen, Hodson, Keith, Morrison, & Belway, 2015). However, exclusionary practices do not achieve their intended effects of improving student behavior or creating a more positive school climate (APA Zero Tolerance Task Force, 2008; Morgan et al., 2014). On the contrary, the use of exclusionary discipline is associated with a progressive series of negative outcomes, from disengagement in school to lower academic performance, further disciplinary infractions, increased risk of dropout, and juvenile court involvement (Fabelo et al., 2011; Lee, Cornell, Gregory, & Fan, 2011; Noltemeyer, Ward, & Mcloughlin, 2015). In a Dear Colleague letter on school discipline, the U.S. Department of Education and the U.S. Department of Justice (2014) raised concern about racial/ethnic disparities in school discipline and recommended that schools take active steps to assess whether their disciplinary policies have a disproportionate impact on racial or ethnic minority students.

Threat Assessment as an Alternative to Zero Tolerance

In cases involving a threat of violence, one alternative to zero tolerance discipline is the use of student threat assessment to distinguish minor misbehavior from behavior that poses a serious or substantive threat of violence (Borum, Bartel, & Forth, 2002). Strictly speaking, threat assessment is not a disciplinary procedure, but a safety program that may inform disciplinary decisions. Threat assessment is a problem-solving approach to violence prevention that gives schools a flexible and practical alternative to zero tolerance discipline. For example, a threat assessment team would make a clear distinction between a toy gun and a firearm and consider both what the student intended to do and what danger the student posed to others. Apart from the clear-cut cases in which a student is behaving in a playful manner with a make-believe weapon, many threat cases require more difficult judgments about a student's intentions.

After the 1999 shooting at Columbine High School, both the FBI (O'Toole, 2000) and Secret Service (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) recommended that schools develop a threat assessment approach, but this was a new and unfamiliar concept in education. Over the past 15 years, schools across the country have established threat assessment teams using different models derived from the FBI and Secret Service recommendations (Cornell & Sheras, 2006; Van Dreal, 2011; Van Dyke & Schroeder, 2006). The APA noted that "behavioral threat assessment is becoming a standard of care for preventing violence in schools, colleges, and the workplace …" (APA, 2013, p. 2). Despite its widespread endorsement, there has been relatively little research testing threat assessment models or the effects of using threat assessment in schools.

Research on Student Threat Assessment

A group at the University of Virginia developed the Virginia Student Threat Assessment Guidelines (VSTAG) in 2001 and carried out a series of field tests and controlled studies examining this model of student threat assessment (Cornell & Sheras, 2006). To our knowledge, there is no published research on other specific models of student threat assessment, beyond descriptive reports of the Dallas Threat of Violence Risk Assessment (Van Dyke & Schroeder, 2006).

The body of research on the University of Virginia model has found substantial evidence that adoption of a threat assessment approach can change attitudes of school personnel toward school discipline, lead to different disciplinary responses toward students who made threats of violence, and have a broader positive effect on school climate and suspension rates. With regard to the attitudes of school personnel, two studies (Allen, Cornell, Lorek, & Sheras, 2008; Cornell, Allen, & Fan, 2012) demonstrated that staff training in VSTAG produced a decrease in fears of school violence, increased willingness to use a threat assessment approach, and reduced support for a zero tolerance approach. These changes were observed across school administrators, counselors, psychologists, school-based police officers, and social workers.

To assess whether staff training translated into differences in outcomes for students, an initial field test of VSTAG involving 188 students in 35 schools found that 94 (50%) of the students received a short-term (mode = 1 day) out-of-school suspension, none received a long-term suspension (>10 days), 12 (6%) were transferred to an alternative school, and three (1.6%) were expelled (Cornell et al., 2004). This study suggested that school personnel were less inclined to use a zero tolerance approach, but it lacked a control group. A subsequent study of 23 high schools adopting a threat assessment approach found a 52% decline in long-term suspensions (but no change in short-term suspensions) after

1 year in comparison to no change in 26 comparison schools (Cornell, Gregory, & Fan, 2011). This study had a school-level control group but could only examine overall school suspension rates rather than outcomes for students who received a threat assessment. Nevertheless, this study suggested that there was a general impact of threat assessment training on school disciplinary practices.

Finally, a randomized control trial was conducted to examine more directly the outcomes for students who received a threat assessment in comparison to students who made threats of violence but attended schools that did not use threat assessment (Cornell et al., 2012). This study compared 100 students who made threats of violence in 20 schools using VSTAG with 101 students in control schools using their existing disciplinary approach without threat assessment. Students receiving a threat assessment were twice as likely to receive counseling services (56% versus 25%) and significantly more likely to have the benefit of a parent conference (75% versus 55%) than students in the control group. Students in the control group were significantly more likely to receive long-term suspension (49% versus 25%) and an alternative school placement (20% versus 4%) than students in the intervention group.

Overall, studies of the VSTAG indicated that schools achieved lower suspension rates (and other benefits) using this particular model of threat assessment, but it was less clear whether these findings generalized to schools using different threat assessment models. Furthermore, it was not clear whether the reductions in suspension rates were found across racial/ethnic groups. Over an approximately 10-year period many schools in Virginia began to adopt the VSTAG or to use other models that they devised or identified in the literature. In 2013, a study examined racial differences in suspension rates for Virginia's 663 secondary schools (JustChildren & Cornell, 2013). This study found that schools using VSTAG had a 15% lower rate of short-term suspensions and a 25% lower rate of long-term suspensions than a heterogeneous group of all other secondary schools. Notably, an analysis examining race and gender found that short-term suspensions were significantly lower for White male, White female, and Black female students, but not Black male students (JustChildren & Cornell, 2013). For long-term suspensions, there were significantly lower rates for Black male students, but not the other groups. However, this study only examined overall suspension rates in schools and did not specifically examine disciplinary outcomes for students who received a threat assessment. Furthermore this study did not examine other disciplinary outcomes such as school transfer or incarceration that might have masked racial differences in exclusion from school (JustChildren & Cornell, 2013). The current study helps to fill those gaps.

CURRENT STUDY

In 2013, Virginia became the first state to mandate the use of student threat assessment teams in all public schools. Virginia law requires each school to have a multidisciplinary threat assessment team that includes individuals with expertise in counseling, instruction, school administration, and law enforcement. Schools are required to report information about their threat assessment cases as part of the state's annual school safety audit survey. In addition, the Virginia Department of Education (VDOE) maintains a database of overall student suspensions and expulsions for each school. These surveys and databases make it possible to examine disciplinary outcomes for students receiving a threat assessment in comparison to school-wide discipline rates. The available data do not permit us to distinguish the small number of individual students (typically one or two) who received a threat assessment in a school from other students receiving disciplinary consequences in the same school.

Previous research suggests threat assessment may be useful in reducing exclusionary discipline approaches and may not produce the racial disparities typically observed in studies of school discipline (JustChildren & Cornell, 2013). In light of the national concern with disparities in school discipline, it is important to examine the disciplinary consequences of this innovative approach when implemented on a statewide basis. Previous studies have not examined the statewide suspension rates specifically for students who received a threat assessment or determined whether there are racial/ethnic differences in the disciplinary consequences assigned to those students. This study makes a unique contribution in examining the disciplinary consequences for students in a large sample of schools that are using student threat assessment.

Our main research question (RQ1) was, "For students that received a threat assessment, were Black or Hispanic students more likely to receive a disciplinary sanction compared to White students?" This question was concerned specifically with comparisons of Black and Hispanic students with White students, since those are the largest racial/ethnic groups in Virginia schools. In addition to out-of-school suspensions (referred to as suspensions in this study), we examined expulsions, school transfers, and law enforcement actions (including arrest, charges, and incarceration). Although these outcomes are not strictly defined as exclusionary discipline, they are meaningful consequences that have the potential to disrupt the student's prior school attendance in some way. It is important to examine racial parity among these additional outcomes because students who are not suspended from school might be subject to them instead. The investigation of this question was conducted in two steps: First, we presented analysis based on data without controlling for additional variables, as is often done in state or national reports showing disproportionality (e.g., Smith & Harper, 2016). In the second step, we conducted a more robust set of analyses that controlled for other student- and school-level variables.

The examination of racial differences in outcomes for threat assessment cases leads to a second question, which is whether there are similar racial differences in the school's general discipline practices for all students. To illuminate findings for the main research question and provide a context

for our results, we investigated this second question (RQ2), which was "Do the schools in our sample show any racial disparities for the full student enrollment in disciplinary consequences for behavioral infractions (such as disruptive behavior and fighting)?" To investigate the second question we used a statewide database recording the numbers of students in a school by race that received a disciplinary consequence for various infractions. Based on prior research (e.g., Huang & Cornell, 2017; JustChildren & Cornell, 2013), we expected to find racial disparities.

METHODS

The research questions were investigated using a sample of 1,836 threat assessment cases conducted in Virginia public schools during the 2014–2015 school year. Information about the cases was obtained from school principals who completed an annual school safety audit survey.

Participants

The annual school safety audit survey was completed by all 1,746 (100%) of Virginia's 1,098 elementary schools, 337 middle schools, and 311 high schools. The sample for the present study was narrowed to include only the 785 schools (405 elementary, 197 middle, and 183 high) that reported at least one case of a threat assessment conducted for a student who threatened to harm others. The excluded schools could have reported that they had no threat cases, threats by nonstudents, or threats of self-harm in the absence of a threat to harm someone else. Of the 1,846 students for whom threat assessment case data were reported, 10 students with missing race/ethnicity or grade-level data, resulting in the exclusion of six schools.

Of the 1,836 students in 779 schools with usable data, 51% were White, 31% were Black, 7% were Hispanic, 3% were Asian, and 9% were of other races/ethnicities. Approximately 75% of the students were male and 35% received special education services at the time of the threat assessment. Additional information on this sample and breakdowns by school level and threat characteristics can be found in a technical report (Cornell et al., 2016).

Data Sources

Data were obtained from two sources: questions about threat assessment cases on the annual school safety audit survey completed by school principals (for RQ1) and disciplinary records from the VDOE (for RQ2). The disciplinary records used to investigate RQ2 were limited to student gender, race, grade, and disciplinary consequences of out-of-school suspensions. Of the 779 schools with student threat assessment data available, 763 schools had reported discipline data in the state database.

Threat assessment questions were developed by the research team in collaboration with the Virginia Department of Criminal Justice Services to be included on the annual Virginia school safety audit survey (Cornell et al., 2016). Surveys were completed following the 2014–2015 school year. The survey asked for detailed information about each threat assessment case. However, to limit the burden on schools, they were asked to provide information for no more than five cases. For 72% of schools, all cases were reported. Schools with more than five cases were asked to report on their most serious case, least serious case, and three most recent cases. We conducted follow-up analyses (described here and in a technical report, Cornell et al., 2016) to test whether the case selection procedure produced any apparent biases in case characteristics.

Measures

The dependent variables were suspensions, expulsion (suspension of 365 or more days), school transfer, and law enforcement action (arrest, court charges, or incarceration). School transfer was defined broadly to include any removal of the student from the original school, such as transfer to a different regular school, placement in an alternative school, or assignment to homebound instruction. Law enforcement actions of arrest (18 cases), court charges (85 cases), and incarceration (14 cases) occurred so infrequently that they were combined into a single category (a total of 89 cases with one or more law enforcement actions). All dependent variables were coded present (1) or absent (0).

The primary independent variable was student race/ethnicity, with our focal interest on comparisons of Black and Hispanic students with White students. In order to provide more precise estimates of other model parameters, we included all racial groups in the regression analyses. Race/ethnicity was dummy-coded with White students as the reference group. Variables that might be associated with disciplinary consequences were selected as covariates in analyses of racial disparities. At the school level, we measured the school enrollment size (in hundreds of students; $M = 8.22$, $SD = 4.89$); percentage of minority (i.e., non-White) students ($M = 46.64$, $SD = 26.70$); and percentage of students eligible for free or reduced price meals ($M = 44.26$, $SD = 24.01$).

The student-level covariates included gender, grade level (elementary, middle, or high school with middle school as the reference group), and special education status (no services coded as 0 and any services coded as 1). It was hypothesized that males, older students, and students receiving special education services would be more likely to receive disciplinary consequences (Sullivan, Klingbeil, & Van Norman, 2013).

Two threat case questions on the safety audit survey concerning weapons and the seriousness of the threat seemed especially pertinent to the determination of disciplinary sanctions for the students. One question asked whether the student was in possession of a weapon (such as a firearm, knife, or other weapon; coded 0 for no weapon and 1 for weapon present) at the time of the threat. All states are required by the Federal Gun-Free Schools Act to have policies that recommend expulsion for students who bring an actual firearm to school (VDOE, 2016). Virginia schools are compliant with

this law. In most cases, the expulsion is reduced to a suspension by the school board. Some school divisions go beyond federal and state law in their use of zero tolerance expulsion for a wider range of weapons brought to school, including firearm look-alikes, firecrackers, and knives. State records showed that few of the weapons detected in Virginia schools were firearms; the majority were knives.

The other question asked how the threat was classified by the threat assessment team. Since schools were not required to use a single threat classification system, we created a simple contrast between threats designated at the lowest (and most frequent) level in any system (e.g., "transient" or "low-level" threats were coded as 0) versus any higher level threats ("substantive" or "imminent," coded as 1). It was hypothesized that threats involving a weapon or judged to be serious would be more likely to result in a disciplinary consequence.

Analytic Plan

The first research question examined the disciplinary outcomes for students who received a threat assessment. The second research question concerned the disciplinary outcomes for the general student enrollment of each school.

Research Question 1

The first research question assessed whether there were racial/ethnic disparities in disciplinary consequences for White, Black, and Hispanic students in suspensions, expulsions, school transfers, and law enforcement actions. In addition to descriptive statistics, a series of hierarchical generalized linear models with a binary outcome and a logit link function (i.e., multilevel logistic regression) were calculated. Logistic regression is an analytic technique used to investigate the association of a predictor with a binary outcome variable (e.g., suspended = 1, not suspended = 0) while controlling for other covariates (Huang & Moon, 2013). We used all available threat assessment cases (including Asians and students of other races/ethnicities) for these analyses in order to increase the precision of our estimates. Statistically nonsignificant coefficients for the dummy-coded Black and Hispanic coefficients signified that these racial/ethnic groups were not sanctioned at higher rates compared to the reference group of White students. These analyses also accounted for the clustered nature of the data, where students were nested within schools. In the first set of models, only race/ethnicity variables were entered into the model. Due to the extremely low prevalence of expulsions (i.e., only a total of 15 White, Black, and Hispanic students were expelled), logistic regression analyses were not performed for this sanction, but descriptive statistics are presented.

Although logistic regression models without additional covariates are useful in identifying simple differences among racial/ethnic groups, it was also important to determine whether any differences were an artifact of differences in other factors such as student gender or grade level. Therefore, a second set of models included school- and student-level covariates. School-level covariates included the percentage of students eligible for free or reduced price meals (FRPM), percentage of minority student enrollment, and school size (in hundreds of students). At the student level, we included student grade level (i.e., elementary, middle, and high school), gender, special education status, whether the student was in possession of a weapon, and threat classification. Results are presented in terms of commonly used odds ratios (*OR*s), where *OR*s > 1 signify a higher likelihood of receiving the disciplinary sanction and *OR*s < 1 indicate a lower likelihood. Data management and analyses used SAS 9.4 (SAS Institute Inc, 2012).

Research Question 2

The second research question concerned whether the schools demonstrated racial disparities for disciplinary infractions in their general student population. This analysis made use of the state disciplinary database, which contained information for out-of-school suspensions but did not include information on school transfers or legal actions and had limited information on expulsions (i.e., only 0.04% of students were expelled). As a result, state-level suspension risk ratios were calculated as the proportion of students in a particular racial/ethnic group who were suspended across all schools in the sample divided by the proportion of White students who were suspended across all schools in the sample. This calculation of risk ratios compared Black and Hispanic students with White students as a reference group. Comparing each minority group with the White reference group facilitated comparison of the resultant risk ratios for each group.

Although the aggregated state-level suspension risk ratios are informative, additional analyses were conducted using school-level risk ratios (e.g., the risk of a Black student at a school being suspended was the number of Black students suspended at the school divided by the total number of Black students enrolled at the school; the school-level suspension risk ratio was the risk of Black students being suspended divided by the risk of White students being suspended). The average of the school-level suspension risk ratios showed how much more frequently Black and Hispanic students were suspended compared to the reference group of White students. Because the risk ratio was a ratio of two rates, in order to avoid comparisons in schools with no students of a particular racial/ethnic group (e.g., a school that was comprised of all White students for which a risk ratio could not be computed), the analytic sample was limited to those schools that had some level of racial diversity (i.e., student enrollment was not comprised of only one race/ethnicity).

In order to compute the Black–White suspension risk ratios, schools with at least 10 Black and 10 White students were included if at least one Black and one White student were suspended. Limiting the analytic sample has been done in other studies (e.g., Data Accountability Center, 2011; Huang & Cornell, 2017) in order to derive meaningful school-level comparisons. A parallel procedure was also performed to estimate the Hispanic–White suspension risk ratio.

In addition, to avoid making any distributional assumptions of the risk ratios, as the distributions of risk ratios across schools are likely skewed, bootstrapped 95% confidence intervals for the average risk ratios were also computed (see Huang, 2016). A risk ratio of one indicated racial parity; values greater than one indicated higher risk for the minority group, and values below one indicated higher risk for the White group.

RESULTS

Data management and analyses for both research questions used SAS 9.4 (SAS Institute, 2012). In this study a statistically significant difference between White, Black, and Hispanic students would indicate racial/ethnic disparity and a non-signification result would suggest racial/ethnic parity in disciplinary consequences.

Research Question 1: Discipline Equity in Threat Assessment Cases

Analyses for the first research question, which concerned the disciplinary consequences for students receiving a threat assessment, found that 47% of White students received a suspension compared to 50% of Black and 42% of Hispanic students (see Table 1 for descriptive statistics). Logistic regression models indicated that differences in the likelihood of suspension were not statistically significant (Table 2). There were also no statistically significant differences for the 15% of White students, 18% of Black students, and 16% of Hispanic students who were transferred from their schools to an alternative setting (see Tables 1 and 2). Finally, based on logistic regression results, there were no statistically significant differences for the 5% of White students, 4% of Black students, and 8% of Hispanic students who received law enforcement actions.

Although the number of expulsions was low, a Rao–Scott χ^2 test was conducted and also indicated that there were no statistically significant differences for the 0.5% of White students, 1.4% of Black students, and 1.6% of Hispanic students who were expelled from school, $\chi^2(2) = 4.28$, $p = .12$. Results of the nonsignificant χ^2 test indicated that the differences based on type of infraction and race/ethnicity were a result of chance or sampling error and suggest no disparities among the three groups. Caution is warranted in interpreting the expulsion data because so few students were expelled.

These results indicated no statistically significant differences among the three racial/ethnic groups, but they could be a result of other student or school factors. To account for this possibility, we conducted further analyses including additional student and school factors that might play a role in the issuance of disciplinary sanctions (Table 3). Both variables of weapon possession and threat classification (lowest level of seriousness versus higher levels) were associated with a greater likelihood of the student receiving a suspension, being placed in an alternative setting, or receiving a legal consequence (all ps < .001). In addition, threats by elementary school students were less likely to receive a disciplinary consequence compared to middle school students (the reference group). Students who received special education services were also more likely to receive a suspension ($OR = 1.27$, $p < .05$) compared to students who did not receive special education services, controlling for all other variables in the model. However, race/ethnicity was not a statistically significant predictor for any of the outcomes. The nonsignificant findings for race/ethnicity were consistent with the expectation that threat assessment did not produce racial disparities in disciplinary sanctions.

One potential concern is that the selection of five cases from each school might have biased the sample in some way that masked racial disparities. As a specification check, we also conducted the analysis for RQ1 using only schools that provided their complete threat assessment data (i.e., the subsample of 563 schools that had five or fewer cases). The analyses of this subsample of 1,122 students generally mirrored the overall analyses in the statewide sample (Table 4). In addition, independent sample t tests indicated that schools with more than five threat assessment cases ($n = 216$) were statistically indistinguishable from schools with five or fewer threat assessment

Table 1. Disciplinary Sanctions for White, Black, and Hispanic Students ($n = 1,626$[a])

	Did Not Receive Sanction		Received Sanction	
	n	%	*n*	%
Suspension				
White	501	53.4	437	46.6
Black	279	49.7	282	50.3
Hispanic	74	58.3	53	41.7
Alternative Placement				
White	794	84.6	144	15.4
Black	459	81.8	102	18.2
Hispanic	107	84.3	20	15.7
Expulsion				
White	933	99.5	5	0.5
Black	553	98.6	8	1.4
Hispanic	125	98.4	2	1.6
Law Enforcement Action				
White	891	95.0	47	5.0
Black	537	95.7	24	4.3
Hispanic	117	92.1	10	7.9

[a]*The* sample size is smaller than the complete sample ($N = 1,836$), since other races/ethnicities were not included.

Table 2. Multilevel Logistic Regression Odds Ratios and 95% Confidence Intervals for Statewide Sample (*N* = 1,836 Students in 779 Schools)

	Out-of-School Suspension		Arrests/Law Enforcement		School Transfer	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI
Student Race/Ethnicity						
Black[a]	1.12	[0.87, 1.44]	0.86	[0.50, 1.46]	1.23	[0.90, 1.68]
Hispanic[a]	0.87	[0.55, 1.36]	1.54	[0.70, 3.37]	1.11	[0.63,1.95]
Asian[a]	0.26**	[0.12, 0.59]	0.46	[0.06, 3.50]	0.64	[0.24, 1.73]
Other[a]	0.93	[0.63, 1.39]	0.92	[0.39, 2.15]	1.13	[0.68, 1.86]

Note. Expulsions were not included as an outcome variable because of their extremely low prevalence (0.9%).
[a]*White* is the reference group.
**$p < .01$.

Table 3. Multilevel Logistic Regression Odds Ratios and 95% Confidence Intervals for Statewide Sample (*N* = 1,836 Students in 779 Schools)

	Out-of-School Suspension		Arrests/Law Enforcement		School Transfer	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI
School-Level Variables						
School Size	0.99	[0.94, 1.03]	1.04	[0.96, 1.12]	0.99	[0.94, 1.05]
Minority Students	0.99*	[0.99, 1.00]	0.99	[0.97, 1.00]	0.99	[0.99, 1.00]
FRPM[a]	1.01***	[1.01, 1.02]	1.01	[0.99, 1.02]	1.01*	[1.00, 1.02]
Student-Level Variables						
Male	1.00	[0.75, 1.35]	0.90	[0.48, 1.68]	1.20	[0.82, 1.77]
Gender Unknown	0.54*	[0.31, 0.94]	0.35	[0.07, 1.77]	0.98	[0.48, 2.04]
Black[b]	1.08	[0.80, 1.46]	1.00	[0.51, 1.95]	1.19	[0.81, 1.75]
Hispanic[b]	0.91	[0.55, 1.49]	1.23	[0.45, 3.36]	1.05	[0.54, 2.03]
Asian[b]	0.30**	[0.13, 0.72]	0.49	[0.06, 4.43]	0.73	[0.24, 2.21]
Other[b]	1.00	[0.65, 1.54]	1.13	[0.43, 2.96]	1.22	[0.69, 2.13]
Weapon[c]	3.85***	[2.21, 6.72]	5.61***	[2.62, 12.05]	2.53***	[1.48, 4.35]
Special Education Services	1.27*	[1.00, 1.62]	0.74	[0.43, 1.27]	1.15	[0.85, 1.56]
Higher Level Threat[d]	3.94***	[2.83, 5.48]	5.51***	[3.27, 9.29]	5.64q***	[4.05, 7.84]
Elementary School Student[e]	0.46***	[0.33, 0.63]	0.08***	[0.03, 0.24]	0.48***	[0.32, 0.73]
High School Student[e]	1.13	[0.73, 1.75]	1.31	[0.65, 2.62]	1.44	[0.88, 2.35]

Note. Expulsions were not included as an outcome variable because of their extremely low prevalence (0.9%).
[a]FRPM = free or reduced price meal. [b]White is the reference group. [c]In possession of a weapon. [d]Threat was classified as lowest level (0) or higher (1). [e]Middle school is the reference group.
*$p < .05$. **$p < .01$. ***$p < .001$

Table 4. Multilevel Logistic Regression Odds Ratios and 95% Confidence Intervals for Subsample (*n* = 1,122 Students in 563 Schools)

	Out-of-School Suspension		Arrests/Law Enforcement		School Transfer	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI
School Level						
School Size	1.00	[0.95, 1.05]	1.04	[0.95, 1.14]	1.01	[0.96, 1.07]
Minority Students	0.99*	[0.98, 1.00]	0.99	[0.97, 1.01]	0.99	[0.98, 1.00]
FRPM[a]	1.02***	[1.01, 1.02]	1.01	[0.99, 1.03]	1.02**	[1.01, 1.03]
Student Level						
Male	0.86	[0.59, 1.25]	1.08	[0.45, 2.59]	1.03	[0.63, 1.68]
Gender Unknown	0.53	[0.28, 1.02]	0.27	[0.03, 2.51]	1.17	[0.51, 2.68]
Black[b]	1.12	[0.77, 1.62]	1.23	[0.52, 2.87]	1.59	[0.98, 2.59]
Hispanic[b]	1.08	[0.60, 1.92]	0.99	[0.29, 3.41]	1.19	[0.55, 2.58]
Asian[b]	0.26**	[0.10, 0.68]	0.59	[0.06, 5.53]	1.01	[0.32, 3.14]
Other[b]	0.98	[0.58, 1.63]	0.89	[0.22, 3.64]	1.56	[0.80, 3.04]
Weapon[c]	3.29***	[1.73, 6.25]	7.95***	[3.20, 19.7]	2.72**	[1.45, 5.10]
Special Education Services	1.17	[0.87, 1.57]	0.81	[0.41, 1.59]	1.14	[0.78, 1.67]
Higher Level Threat[d]	3.69***	[2.42, 5.64]	4.48***	[2.31, 8.68]	3.96***	[2.60, 6.05]
Elementary School Student[e]	0.58**	[0.39, 0.85]	0.07***	[0.02, 0.26]	0.43***	[0.26, 0.71]
High School Student[e]	1.06	[0.64, 1.75]	1.29	[0.55, 3.04]	1.07	[0.60, 1.92]

Note. This subsample represents the schools that provided data on all of their threat assessment cases. Expulsions were not included as an outcome variable because of their extremely low prevalence (0.9%).
[a]FRPM = free or reduced price meal. [b]White is the reference group. [c]In possession of a weapon. [d]Threat was classified as lowest level (0) or higher (1). [e]Middle school is the reference group.
*$p < .05$. **$p < .01$. ***$p < .001$.

cases ($n = 563$) in terms of the percent of enrolled minority students (Ms = 47 vs. 46 for schools reporting all threats, $p = .62$), percent eligible for FRPM (Ms = 47 vs. 43 for schools reporting all threats, $p = .08$), and school size (Ms = 870 vs. 801 students for schools reporting all threats, $p = .08$).

Research Question 2: Discipline Equity in Sample Schools

The second research question was addressed by using state records for disciplinary infractions of any type that resulted in an out-of-school suspension. In the 763 schools in the sample with data, 40,198 students (70% male) were suspended based on a total enrollment of 627,768, resulting in an overall suspension rate of 6.4%. The racial/ethnic breakdown for students receiving suspensions was 51.3% Black, 32.6% White, 10.0% Hispanic, 0.9% Asian, 0.3% American Indian or Alaska Native, and 4.7% multiracial. On average, schools reported 52.7 suspensions ($SD = 70.05$; total of 40,198 suspensions). At the aggregated state level, the proportion of Black students who were suspended was 3.52 times higher than the proportion of White students who were suspended. In comparison, the aggregated Hispanic–White risk ratio was 1.03.

We conducted supplemental school-level risk ratio analyses to further investigate disparities at the school level.[1] The sample was limited to schools with some form of racial diversity ($n = 568$ for Black–White risk ratios; $n = 443$ for Hispanic–White risk ratios). The mean school-level Black–White suspension risk ratio indicated that Black students were approximately three times more likely to be suspended compared to White students ($RR = 3.08$, $SD = 2.77$, range = 0.2–34.6, 95% bootstrapped CI [2.8, 3.3]). For the mean of the school-level Hispanic–White risk ratios, Hispanic students were almost twice as likely to be suspended compared to White students ($RR = 1.79$, $SD = 2.32$, range = 0.1–25.5, 95% bootstrapped CI [1.59, 2.01]). The confidence intervals of the risk ratios, both of which did not include 1, indicating racial parity, showed that Black and Hispanic students were more likely to be suspended compared to their White peers.

[1] We thank the editor for this suggestion.

DISCUSSION

The widespread problem of racial/ethnic disparities in exclusionary discipline makes it imperative for schools to examine their disciplinary practices (U.S. Department of Education & U.S. Department of Justice, 2014). Accordingly, this study investigated disciplinary outcomes for racial/ethnic groups of students receiving threat assessments as part of a new statewide mandate. Although threat assessment is fundamentally a violence prevention strategy, it can have substantial disciplinary and legal consequences for students. This study examined 1,836 threat assessment cases in 779 schools and found no statistically significant differences among Black, Hispanic, and White students in rates of school suspensions, expulsions, school transfers, or legal consequences. Neither Black nor Hispanic students were more likely than White students to be suspended or expelled from school, be transferred to a different school, or receive legal consequences (arrest, formal charges, or incarceration). These findings suggest that there was racial parity in the outcomes of student threat assessment for Virginia schools.

The parity in suspension and expulsion rates for the Black and White students receiving threat assessments contrasted markedly with the overall suspension rates in those schools. Most notably, school-level risk ratios showed that Black students were suspended at 3.1 times the rate of White students, and Hispanic students were 1.8 times more likely to be suspended compared to White students. However, the general disparity for Black and Hispanic students was not present for the Black and Hispanic students receiving a threat assessment.

In order to gain further understanding of the threat assessment process, a series of logistic regression analyses examined student and school characteristics associated with disciplinary consequences. These analyses reinforced the findings that Black and Hispanic students were not suspended, transferred from school, or subject to legal actions at a higher rate than other students after controlling for other student and school demographic variables. Although there were no study hypotheses about Asian students, these analyses also revealed that Asian students were less likely to be suspended than other students, which is consistent with other studies of suspension rates for Asian students (e.g., Sullivan et al., 2013). Unlike studies of disciplinary infractions in the general student population (JustChildren & Cornell, 2013; Sullivan et al., 2013), gender was not associated with disciplinary consequences in threat assessment cases.

Students receiving special education services were more likely to be suspended from school (although not subject to school transfer or legal actions) than students in general education following a threat assessment. The elevated suspension rate for students in special education is a concern because it is consistent with previous reports that students in special education are subject to disproportionate exclusionary discipline (Miller & Meyers, 2015; Sullivan et al., 2013). Furthermore, this unexpected finding is contrary to an earlier finding that threat assessments did not result in higher suspension rates for students in special education than students in general education (Kaplan & Cornell, 2005). This area merits further investigation and suggests that discussion of disciplinary responses to students receiving special education services might be a useful topic to include in threat assessment training.

School psychologists should be sensitive to characteristics that raise concern that a threat is serious and may require protective action. Students who were in possession of a weapon at the time of the threat were more likely to be suspended, be transferred, or face legal actions than students without weapons. This finding is consistent with threat assessment training that possession of a weapon is an indication that a threat is more dangerous. Another key threat characteristic was the seriousness of the student's intent as judged by the threat assessment team. Although schools in the present investigation used somewhat different threat classification systems, it was possible to divide cases into those that received the lowest classification level (e.g., transient threat, low-risk threat) from those that received a higher classification level (e.g., substantive, moderate, medium, or high). As expected, students whose threats were placed in the lowest risk category were less likely to receive an exclusionary discipline consequence. These findings, although not surprising, provide some assurance that teams are making decisions with some consistency between their appraisal of the threat and the disciplinary consequence. School psychologists can help ensure the quality of the threat assessment process through knowledge of risk and protective factors for youth violence (Borum, Bartel, & Forth, 2002).

An important area for further investigation is to understand why the threat assessment process does not lead to racial/ethnic disparities in discipline and, in particular, a high rate of exclusionary discipline for Black students. One possible explanation is that the threat assessment process disrupts the routine disciplinary process that leads automatically to suspension or expulsion. Even if the student's behavior does not qualify as a zero tolerance violation, schools might use a zero tolerance–type approach that focuses on punishing the student for misbehavior rather than assessing the student's motive and helping the student to find a more suitable alternative. In contrast, threat assessment teams are taught to investigate the student's behavior and to consider his or her motivations and intentions in making a threat. Often a threat signals a frustrating problem or conflict that the student has been unable to resolve. School psychologists are encouraged to take a problem-solving approach that helps the student and makes the threatened act unnecessary (Cornell, 2014). For example, a student may be distressed by the end of a romantic relationship and have trouble coping with feelings of loss and rejection. Another student may be frustrated by academic difficulties that lead him or her to lash out at a teacher. School psychologists can play a critical role in helping school authorities assess the student's misbehavior, recognize underlying educational and social–emotional needs, and identify appropriate interventions.

Several previous studies reported that schools using threat assessment had a decline in overall school-wide suspension rates, especially long-term suspensions (Cornell et al., 2011; Cornell & Lovegrove, 2015). Schools that had used threat assessment for more years had greater reductions than schools that had more recently adopted threat assessment (Cornell & Lovegrove, 2015). These findings raise the possibility that school authorities using threat assessment developed a change in their approach to school discipline that reduced their use of suspension. This is an area in need of further study, preferably with direct assessment of administrative decision-making and school practices.

Practical Implications

School psychologists can help schools to integrate threat assessment into their school safety program and distinguish it from school discipline. Threat assessment is a safety program designed first and foremost to prevent violence; it does not replace the school's disciplinary process, code of conduct, or behavioral expectations for students. One way to make this distinction is to point out that threat assessment is concerned with preventing a future act of violence, whereas school discipline is concerned with assigning consequences to students for misbehaviors that have already occurred. For this reason, threat assessment and disciplinary actions are not necessarily yoked. For example, a student might pose a serious threat to others without having committed a disciplinary violation. On the other hand, some threatening acts that are not serious as threats can be serious disciplinary violations. The case of a bomb threat illustrates the divergence between threat assessment and discipline. A bomb threat would clearly be a disciplinary (and legal) matter because it is disruptive to the school, but the question for threat assessment is whether the student has the means and intent to set off a bomb (or in some other way harm others). Although threat assessment and discipline are distinct processes, a threat assessment provides insights into a student's behavior that might be considered in making disciplinary decisions.

Threat assessment is compatible with approaches to school discipline that reject zero tolerance in favor of considering the context and meaning of the student's behavior. For example, the emphasis on taking action in response to student needs is harmonious with the restorative justice approach to school discipline (Gregory, Clawson, Davis, & Gerewitz, 2014). Restorative justice focuses on helping students to understand the impact of their behavior on others and find ways that they can repair the harm they caused to others. A restorative intervention emphasizes "reintegrating the wrongdoer into the community" (Gregory et al., 2014, p. 6) rather than punishing the wrongdoer with exclusionary discipline. Restorative practices aim to build supportive and trusting relationships between adults and students that ultimately reduce discipline problems (Gregory, Huang, Anyon, Greer, & Downing, this issue).

In many cases, a student's threatening behavior is associated with an interpersonal conflict or dispute that might be addressed with counseling or conflict mediation (Cornell & Sheras, 2006). In other cases, a student's threat might be a manifestation of emotional or behavioral problems that merit intervention, such as mental health services or a referral for special education services. Some students may already be receiving special education services, and it is appropriate to review and modify those services in light of the student's potential for violence (Kaplan & Cornell, 2005).

In practice, school psychologists are well positioned to help school teams recognize the additional complexities of a threat assessment for a student receiving special education services. Threat assessments can be conducted regardless of a student's special education status while still respecting the legal requirements and protections of special education status. For example, if a student receiving special education services engages in threatening behavior that also constitutes a serious disciplinary violation, it may be appropriate to conduct a manifestation determination review to consider whether the student's disability contributed to the behavior. A threat assessment does not replace or nullify the need for a manifestation determination, but it can provide additional insight into the student's behavior. In some cases, a threat assessment might prompt a school to revise a student's Individualized Education Program. Of course, for students not receiving special education services, the findings of a threat assessment might indicate the need for a special education evaluation, which would be conducted separately.

Study Limitations and Directions for Future Research

There are several important limitations to this study. Because Virginia mandates that all schools have threat assessment teams, there was no control group of schools that did not use threat assessment. However, a previous randomized control trial determined that schools using threat assessment were significantly less likely to suspend students who made a threat than schools not using threat assessment (Cornell et al., 2012) and found no racial differences in suspension outcomes for White versus Black students (Cornell & Lovegrove, 2015). The randomized control trial was an efficacy study of threat assessment under conditions monitored by researchers, whereas the present study examines threat assessment under more typical conditions. The present study extends the evidence that threat assessment does not generate racial disparities in discipline by examining a statewide sample of schools. However, the schools in the present study were not trained to use a single, specific model of threat assessment, and there is a need to study the differential effectiveness of threat assessment practices and to compare models across schools. In addition, a large randomized control trial would provide valuable additional evidence that threat assessment leads to lower rates of school suspension and does not result in racial disparities.

The primary analyses made use of all available cases from 779 schools, but there was a limit of five cases per

school. For 28% of schools with more than five cases, schools were instructed to select their most serious, least serious, and three most recent cases. Although it would have been preferable to include all cases from every school, this was judged to be too burdensome a reporting requirement for the state survey. It is conceivable that this selection process could have biased the sample in a way that masked racial differences in student outcomes. To check this possibility, a secondary series of analyses were conducted with the subgroup of 1,112 cases from the 563 schools that reported all of their cases. These analyses produced results that were largely consistent with the analyses for the full sample. Once again, there were no disciplinary consequences associated with being Black or Hispanic. The main difference was that in this analysis the odds ratio for special education services was slightly smaller (1.17 vs. 1.27) and not statistically significant.

These analyses were based on school reports of their threat assessment cases, which might not be as complete or accurate as independent observation and contemporaneous recording of cases as they occur during the school year. In addition, schools varied in the model of threat assessment they used, and there was no assessment of the fidelity of model implementation. These are important areas for further study, since teams that conduct threat assessments with higher fidelity may achieve superior results, such as less student aggression, lower suspension rates, and a more positive school climate (Cornell, Sheras, Gregory, & Fan, 2009; Nekvasil & Cornell, 2015).

Future studies should consider a broader range of factors that influence threat assessment outcomes (such as the student's special education status) and characteristics of the threat (such as whether it involved weapons). It is also possible that threat assessment teams respond differently depending on whether the student has targeted a peer, a teacher, or someone else.

Conclusion

The racial and ethnic disparities in exclusionary school discipline and their negative consequences for all students have brought intense public and governmental scrutiny to school authorities and prompted a demand for reform (U.S. Department of Education & U.S. Department of Justice, 2014). As advocates for evidence-based methods, school psychologists can be the champions of safety programs and disciplinary practices that are equitable across racial/ethnic groups and minimize the use of school exclusion.

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Date Received: June 9, 2016
Date Accepted: February 9, 2017
Guest Editor: Jessika Bottiani ■

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Closing the School Discipline Gap

Equitable Remedies for Excessive Exclusion

EDITED BY

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Teachers College
Columbia University
New York and London

Published by Teachers College Press, 1234 Amsterdam Avenue, New York, NY 10027

The editor and authors are grateful for the support of Atlantic Philanthropies and the Discipline Disparities Research to Practice Collaborative.

The chapters included in this book are an expansion of work that was initially presented during the Closing the School Discipline Gap: Research to Practice conference held on January 10, 2013, in Washington, DC. We are especially fortunate to have the collective wisdom of the members of the Discipline Disparities Research to Practice Collaborative review and approve each book when submitted as a paper proposal for the conference.

Library of Congress Cataloging-in-Publication Data ISBN 978-0-8077-XXXX-X (paper)

ISBN 978-0-8077-XXXX-X (hardcover)

ISBN 978-0-8077-XXXX-X (ebook)

Printed on acid-free paper

Manufactured in the United States of America

22 21 20 19 18 17 16 15 8 7 6 5 4 3 2 1

Student Threat Assessment as a Method of Reducing Student Suspensions

Dewey Cornell and Peter Lovegrove

Severe acts of violence in schools are a serious concern, but they are relatively rare events that few schools will ever experience. In contrast, threats of violence are found in almost every school and pose a complex problem for our nation's schools (Borum, Cornell, Modzeleski, & Jimerson, 2010). The most recent national review (Robers, Kemp, & Truman, 2013) found that 7% of students in grades 9 through 12 reported being threatened or injured with a weapon on school property. In a separate study (Robers et al., 2013), 7% of teachers reported being threatened with injury by a student. Student threats are much more common than official records indicate. For example, a recent survey of 3,756 high school students found that 12% recalled being threatened at school in the previous 30 days, but only 26% of those threats were reported to school authorities (Nekvasil & Cornell, 2012). Most student threats are not considered serious; the dilemma for school authorities is to distinguish a serious threat from what might be nothing more than a joking comment or a fleeting expression of anger in order to avoid both underreacting and overreacting to student behavior. Unfortunately, school shootings can generate a climate of fear and concern that tilts school authorities toward overreaction.

When school authorities learn of a threat, they often apply a zero-tolerance model of discipline that typically involves immediately removing the offending student from school

(American Psychological Association Zero Tolerance Task Force, 2008). A zero-tolerance approach means that all students receive a harsh consequence regardless of the seriousness of their intentions. Although suspension is intended as a corrective measure that motivates students to improve their behavior, there is abundant evidence that it does not achieve that purpose. Suspended students tend to engage in further misbehavior and are likely to be suspended again (Fabelo et al., 2011; Hemphill, Toumbourou, Herrenkohl, McMorris, & Catalano, 2006). School suspensions are consistently associated with negative academic outcomes, including disengagement, truancy, poor academic performance, and, ultimately, dropping out of school (Fabelo et al., 2011; Lee, Cornell, Gregory, & Fan, 2011; Skiba & Sprague, 2008). Because Black students are more likely to be suspended than White students (Wallace, Goodkind, Wallace, & Bachman, 2008), they disproportionately experience the negative consequences of this counterproductive discipline strategy.

Studies of school shootings by both the FBI (O'Toole, 2000) and the Secret Service (Fein et al., 2002) recommended that schools use a threat-assessment approach to prevent violence by distinguishing serious threats from those that pose no real danger. Threat assessment is a violence prevention strategy that begins with the evaluation of individuals who threaten to harm others, and is followed by interventions designed to reduce the risk of violence. A key aspect of threat assessment is its emphasis on considering the context and meaning of the student's behavior and taking action proportionate to the seriousness of the student's actions.

Consider a simple example. Even an explicitly threatening statement such as "I'm gonna kill you" must be considered in context. A student could make such a statement as a joke, as an expression of frustration with no intent to harm, or as an expression of intent to fight but not kill someone. Finally, in the most serious situation, the student might be planning and preparing to

carry out a lethal attack. Those judging the severity of such a threat must consider the full circumstances. Although one can imagine ambiguous cases in which it is difficult to judge the seriousness of a threat, our experience is that school authorities can gather enough information to make a reasonable determination in the overwhelming majority of cases. This permits school authorities to avoid the one-size-fits-all approach of zero-tolerance, in which all students are automatically suspended from school regardless of the seriousness of their offense.

VIRGINIA STUDENT THREAT ASSESSMENT GUIDELINES

The Virginia Student Threat Assessment Guidelines (Cornell & Sheras, 2006) were developed as an alternative to the zero-tolerance approach to student threats of violence. In the adoption of these guidelines, a multidisciplinary team at each school is trained to use a standard procedure and a seven-step decision tree to evaluate the seriousness of a student's threatening behavior, and to take appropriate action based on that evaluation. However, the threat assessment does not stop when the seriousness of the behavior is determined; it includes an effort to intervene on the student's behalf to resolve whatever problem, conflict, or stressful situation underlies the threatening behavior. Most cases are resolved as "transient threats" that pose no serious danger to others, whereas the more serious "substantive threats" require a progressively more extensive assessment and intervention process. Our studies have consistently found that these cases are resolved without the threat being carried out, even in an urban school system serving a city with a high rate of violent crime (Strong & Cornell, 2008). On the contrary, we have found that threats resolved using the assessment method have resulted in improved student behavior and lower levels of bullying, along with a decrease in school suspensions (e.g., Cornell, Gregory, & Fan, 2011).

The threat assessment team typically consists of a school administrator, a school resource officer, and one or more mental health professionals. The team leader—usually the school administrator who handles disciplinary matters—calls on team members for help as needed, depending on the seriousness and complexity of the case. The school administrator can resolve some simple cases working alone, and in other cases he or she will want to engage a school counselor or other mental health professional to work with a student. In the most serious cases, a law-enforcement officer is consulted to determine whether a law-enforcement investigation and/or security measures are appropriate.

A threat assessment team takes a problem-solving approach to violence prevention that includes providing counseling and support services to resolve the conflict or difficulty that incited the threat, and working out a solution that allows the student to continue in school. The basic idea is that a student threatens violence because he or she is frustrated by a problem, such as a conflict with peers. One goal of the threat assessment process is to help the student deal with the problem so that there is no longer a need to make a threat. This approach to student threats reflects a broader shift in perspectives on preventing student misbehavior. It reduces reliance on punitive sanctions, such as school suspension, and puts greater emphasis on teaching students more effective ways to solve problems and choose appropriate behavior (Osher, Bear, Sprague, & Doyle, 2010). For this reason, threat assessment training might have a more generalized impact on school discipline and the use of suspension.

We recently conducted a randomized controlled study of threat assessment (for details of this study and a review of prior studies, see Cornell, Allen, & Fan, 2012). In this study, a single school division (what school systems are called in Virginia) agreed that 20 of its 40 schools would be randomly assigned to receive threat assessment training, and 20 would delay training

for 1 year and serve as a control group. During 1 school year, 201 students in both groups of schools (100 in intervention schools and 101 in control schools) were identified as making threats of violence. The critical issue was how school authorities would respond to these threats and the extent to which they would rely on school exclusionary consequences such as suspension or transfer to a different school.

The Virginia Guidelines were designed to produce three outcomes that were assessed in this study: (1) use of counseling and mental health services to resolve conflicts, (2) involvement of parents in response to the threat, and (3) return of students to school without long-term suspension or alternative school placement. A potential fourth outcome was to examine whether the students carried out their threat of violence. However, as we found in our previous studies (Cornell et al., 2004; Strong & Cornell, 2008), few students carried out their threats. Because only seven students were identified as carrying out their threat of violence in the present study, no group comparisons were undertaken.

For each hypothesized outcome, a series of logistic regression analyses compared the intervention and control students, after controlling for the effects of demographic variables (student gender, school level, and race) and severity of the threat. Students in schools using the Virginia Guidelines were approximately four times more likely than control students to receive counseling services, and students in the intervention group were about two-and-a-half times more likely to have the benefit of a parent conference. Students in the intervention group were about one third as likely to receive long-term suspension and one eighth as likely to receive an alternative school placement.

Intervention efforts typically do not have equivalent effects in all schools. Thus we examined differences in how well schools adopted the Virginia Guidelines (fidelity of implementation) and

whether those differences were associated with student outcomes. The fidelity of school staffs' implementation of the threat assessment guidelines was assessed for the 20 intervention schools using a compliance scale based on the extent to which team members at each school attended threat assessment meetings, completed documentation forms, and reported that they used the threat assessment model. Higher compliance scores were associated with a 24% increase in the use of counseling services and a 25% lower rate of long-term suspensions.

NEW RESEARCH FINDINGS

This chapter summarizes new findings from two studies. The first was a follow-up analysis from the randomized controlled trial just described (Cornell et al., 2012). This analysis examined whether the positive findings from the initial analyses benefited both White and Black students. The second study examined the link between use of the Virginia Guidelines and school suspension rates in a much larger statewide sample of elementary, middle, and high schools. Here the main question was whether the positive effects on long-term suspensions that were observed in controlled studies would be observed in a large-scale implementation.

Randomized Controlled Trial

A new analysis was conducted on the 201 students from the 40 schools that participated in the randomized controlled trial (Cornell et al., 2012). The original study found that students who made threats of violence at schools using the threat assessment model were approximately one third as likely to receive long-term suspensions as students who made threats in the control schools. The purpose of this analysis was to determine whether the reduction in long-term suspensions and other positive outcomes were comparable for Black and White students (details

available from the author). We found lower suspension rates for both Black and White students, and that both groups experienced comparable benefits.

Study of Statewide Suspension Rates

Previous studies found that high schools using the Virginia Guidelines had lower suspension rates than comparison high schools (Cornell et al., 2011; Cornell, Sheras, Gregory, & Fan, 2009). These studies also observed better student–teacher relations, less bullying, and a more positive school climate in schools that had adopted the Virginia Guidelines. This suggested that, when school authorities moved from a zero-tolerance approach to a threat assessment approach, there was the potential for a broader impact on all school discipline decisions, not just responses to threatening behavior. However, studies have not looked for similar effects in elementary and middle schools, nor have they examined whether these effects vary across schools with differing racial and socioeconomic composition.

The second study examined the scaled-up implementation of the Virginia Guidelines in Virginia public schools using a retrospective, quasi-experimental design. Over the past decade, an increasing number of Virginia school divisions have gradually adopted the Virginia Guidelines. The decision of whether or not to adopt them was made by school administrators in each local school division. Information about the Virginia Guidelines was disseminated largely through state conferences and meetings, and by informal reports of success that school administrators shared with one another. By school year 2011–2012, 1,141 schools representing 58% of Virginia's public schools reported using the guidelines. An important question is whether the schools that adopted the guidelines saw a reduction in school suspension rates. Unlike the randomized controlled trial, this study did not track the outcomes for individual students but instead examined schoolwide suspension rates to determine whether there was a generalized

effect at the school level. A more detailed report of these results can be found in Virginia's annual safety audit report (Virginia Department of Criminal Justice Services, 2013).

The sample for this study consisted of 1,795 regular public schools in Virginia, including 1,157 (65%) elementary schools, 327 (18%) middle schools, and 311 (17%) high schools.[1] The demographic composition of the schools was 59% White, 25% Black, 9% Hispanic, 5% Asian, and 4% other groups. (For additional demographic information, see Table 12.1 in the online report.)

Each year, all Virginia public school principals are required by law to complete an online school safety audit survey. In 2011, principals were asked first, "Does your school use a formal threat assessment process to respond to student threats of violence?" Those who answered "yes" were asked a follow-up question: "For your formal threat assessment process, do you follow the guidelines developed by the University of Virginia?" We compared 971 schools that reported using the Virginia Guidelines with all other schools, consisting of 381 who reported not using any type of threat assessment method and 443 using some other threat assessment model. Principals also reported how many years they had been using the Virginia Guidelines and whether their school staff had been formally trained in using them.

All public schools in Virginia are required to report their annual number of short-term (<10 days) and long-term (>9 days) suspensions.[2] Suspension rates vary considerably across schools, but they report on average 2 long-term suspensions and 83 short-term suspensions per year. We conducted a series of regression analyses to investigate the relations between the use of the Virginia Guidelines and the use of long- and short-term suspensions. These analyses controlled for the type of school (elementary, middle, or high), enrollment size, and the proportion of students eligible for a free or reduced-price meal. As a baseline measure of school misbehavior,

the analyses also controlled for the total number of disciplinary infractions reported for the 2006–2007 school year.

The first research question was whether use of the Virginia Guidelines was associated with fewer school suspensions. Results indicate that schools using the Guidelines had 19% fewer long-term suspensions than schools not using them, after controlling for school demographic measures. Use of the Virginia Guidelines was also associated with 8% fewer short-term suspensions.

The second research question was whether the period of time the Virginia Guidelines had been in use was associated with fewer long-term and short-term suspensions. These analyses were limited to the schools that used the Virginia Guidelines. A 1-year increase in the period of time a school had used the Virginia Guidelines was associated with a 16% reduction in long-term suspensions and a 5% reduction in short-term suspensions.

The third research question concerned whether schools that had formal staff training in the Virginia Guidelines showed a greater reduction in suspensions than schools using the Virginia Guidelines but without training. The analysis distinguished between those who reported using the Virginia Guidelines without training and those who reported using the Virginia Guidelines with training. Regression analyses found that suspension rates at schools using the Virginia Guidelines without training did not differ from those that were not using the guidelines, whereas schools that used the Virginia Guidelines with training experienced 22% fewer long-term suspensions and 10% fewer short-term suspensions than schools not using the guidelines.

The fourth research question concerned whether the lower suspension rates observed in schools using the Virginia Guidelines varied across schools with different proportions of White and minority students. This kind of analysis is useful in discerning whether there are differential

effects between schools with high and low percentages of minority students. Skiba and colleagues (see Chapter **9**) found that schools with a high percentage of minority students tended to have substantially higher suspension rates, and that both minority and nonminority students were more likely to be suspended in high-minority schools than in those with a lower percentage of minority students.

Our regression analyses examined the statistical interaction between use of the Virginia Guidelines and the proportion of White students in the school. We constructed six separate regression models using long-term and short-term suspensions as an outcome, and using three different measures of Virginia Guidelines use: (1) guidelines used and not used, (2) number of years using the guidelines, and (3) using the guidelines with and without formal training. We found that the significantly lower suspension rates observed in schools using the Virginia Guidelines did not differ across schools with different proportions of White and minority students.

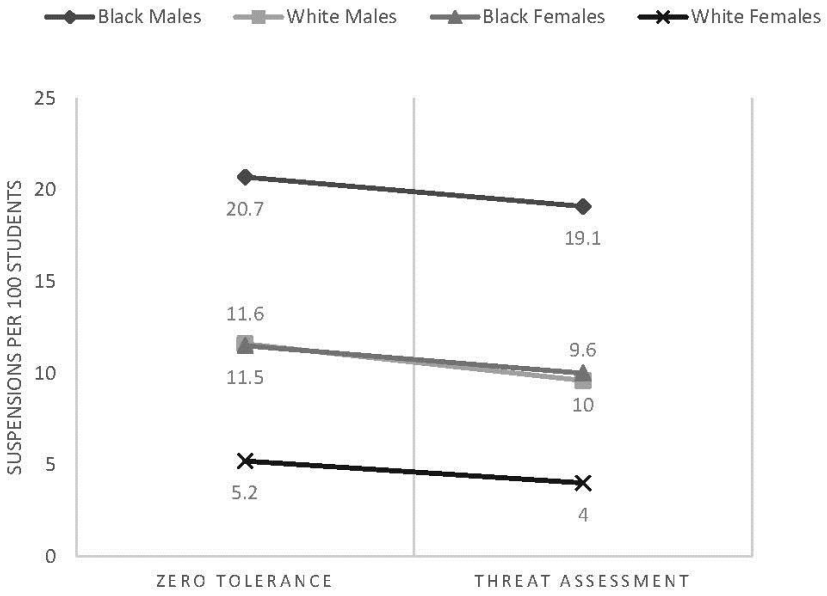
A fifth research question concerned whether the lower school suspension rates were observed among both Black and White students. To undertake these analyses, the Virginia Department of Education provided us with a data file that contained a record of each school's suspensions disaggregated by race and gender. These data allowed us to calculate both short-term and long-term suspension rates for Black males, White males, Black females, and White females. Our initial analyses of these rates again revealed that schools using the Virginia Guidelines had lower suspension rates than schools not using them. However, the differences were significant only in the middle and high schools, not in the elementary schools. Both short-term and long-term suspension rates in elementary schools tend to be substantially lower than in middle or high schools, and many elementary schools have no long-term suspensions for the entire school year.

In contrast, middle and high schools have similarly high suspension rates. Thus we focused our attention on a combined group of 663 middle and high school schools, of which 398 used the Virginia Guidelines and 265 did not.

Overall, the short-term suspension rate in schools using the Virginia Guidelines was 9.2 suspensions per 100 students, compared to 10.8 suspensions per 100 students in other schools. This represents a difference of approximately 15%. For long-term suspensions, the contrast was 3.6 suspensions per 1,000 students among schools using the Virginia Guidelines versus 4.8 per 1,000 among schools not using the Virginia Guidelines, a difference of approximately 25%. To put these results in perspective, a 15% decrease from the 62,942 short-term suspensions in Virginia secondary schools would mean that 9,441 fewer students received a short-term suspension. A decrease of 25% for the 3,060 long-term suspensions would mean that 765 fewer students received a long-term suspension.

As shown in Figure 12.1, short-term suspensions were lower in schools using the Virginia Guidelines for all four race-by-gender groups. The lower rates for White males, Black females, and White females were statistically significant, but the lower rate for Black males fell short of statistical significance ($p = .075$). As shown in Figure 12.2, the long-term suspensions rates were also lower in schools using the Virginia Guidelines for all four groups, but only the lower rate for Black males was statistically significant.

Figure 12.1. Short-Term Suspensions for Zero Tolerance Versus Threat-Assessment Schools



AVERAGES ACROSS 663 SCHOOLS STATISTICALLY ADJUSTED FOR SCHOOL SIZE AND PERCENTAGE OF STUDENTS RECEIVING FREE/REDUCED-PRICE MEALS

Figure 12.2. Long-Term Suspension Rates for Zero Tolerance Versus Threat-Assessment Schools

AVERAGE RATES ACROSS 663 SCHOOLS, STATISTICALLY ADJUSTED FOR SCHOOL SIZE AND PERCENTAGE OF STUDENTS RECEIVING FREE/REDUCED-PRICE MEALS

The racial disparity in suspension rates for Black and White students can be gauged as the difference between the two groups. For short-term suspensions, the racial disparity is similar in

the two groups of schools for both males and females, although the overall suspension level is reduced. In the case of long-term suspensions, however, the disparity between White and Black males is notably lower in schools using the Virginia Guidelines. In schools using the guidelines, the disparity between White and Black males is 3.3 percentage points (7.6–4.3), as compared to 6.1 percentage points (11.2–5.1) in schools not using the guidelines. The difference between 3.3 and 6.1 was statistically significant (p = .04).

POLICY IMPLICATIONS

The new findings reported in this chapter build on previous studies that found that use of the Virginia Guidelines was associated with lower rates of school suspension (Cornell et al., 2011; Cornell et al., 2009).[3] The randomized controlled trial conducted in 40 schools produced strong evidence that the Virginia Guidelines can reduce long-term suspensions among students who have made a threat of violence. The statewide study found correlational evidence of lower rates of both long-term and short-term suspensions in schools that have adopted the guidelines. Together, these findings suggest that school authorities have a viable alternative to zero-tolerance methods of handling students who threaten violence. It seems possible for school authorities to take a problem-solving approach to resolve student threats without resorting to school suspension. This would enable schools to avoid the well-known negative consequences associated with suspension (APA Zero Tolerance Task Force, 2008).

Reducing the number of student suspensions for making threats of violence could not alone account for the statewide differences of 15% for short-term suspensions and 25% for long-term suspensions observed in secondary schools, because relatively few such students have been identified in the average school over the course of a school year. In one study, schools conducted

an average of 5.4 threat assessments in one school year (Cornell et al., 2004), and in another study the average was 5.0 cases (Cornell et al., 2012). It appears that school authorities are using suspension less frequently for a wider range of student misbehavior, for which there are several possible explanations. For example, schools might be making other changes in their disciplinary practices at the same time, but we observed no such changes in our previous studies, including a randomized controlled trial (Cornell et al., 2012).

Another possibility is that the adoption of threat assessment has convinced school authorities to move away from zero-tolerance practices and put greater emphasis on resolving the problem or conflict that underlies a student's misbehavior. Our training studies provide some evidence to support this hypothesis. Before receiving threat assessment training, school personnel often support a zero-tolerance approach to school discipline and tend to overestimate the prevalence of homicidal violence in schools. Three studies have shown that training produced changes with statistically large effects in school personnel attitudes and knowledge about school violence (Allen, Cornell, Lorek, & Sheras, 2008; Cornell et al., 2012; Cornell et al., 2011). Notably, school personnel showed a lower commitment to zero-tolerance and consistently positive attitudes toward using the Virginia Guidelines after training. These changes were observed for school administrators (principals and assistant principals), as well as school-based mental health professionals (school psychologists, counselors, and social workers) and school-based law-enforcement and security officers.

A key issue for policymakers is the importance of educating school leaders about the negative consequences of school suspension and convincing them of the viability of alternatives to suspension as a disciplinary consequence. As Skiba and colleagues (see Chapter 9) conclude, principals' attitudes toward discipline play an important role in determining whether a student is

suspended from school for a disciplinary infraction. Our findings show that schools using the Virginia Guidelines have lower suspension rates, and that longer use of the guidelines was associated with progressively lower suspension rates.

The quality of the guidelines' implementation is important, too. The randomized controlled trial found that schools with a higher quality of implementation had outcomes superior to schools using the model with lower quality implementation (Cornell et al., 2012), and the statewide study found that schools that had formal training in the guidelines had lower suspension rates than schools that reported adopting the guidelines without formal training.

Skiba and colleagues (Chapter 9) observed that suspension rates tend to be highest in schools with high proportions of minority students, and that this effect was observed for both White and minority students, suggesting that school demographics have an influence on suspension rates. In this context, it is noteworthy that the present study found that the percentage of White students in the school did not affect the magnitude of differences between schools using the Virginia Guidelines and those not using them. This suggests that the Virginia Guidelines can be used with comparable effects in schools that have both high and low percentages of minority students. Our randomized controlled study found similar reductions in the suspension rates of both Black and White students, and the statewide correlational study found some evidence that the gap between Black and White males was reduced for long-term suspensions. Nevertheless, the strongest and most important finding was that suspension rates for Black students were reduced. Reductions in suspension rates are an important goal that has concrete benefits for minority students.

Virginia schools, as well as several thousand schools in more than a dozen other states, have chosen to adopt the Virginia Guidelines. Policymakers could learn from Virginia's experience, which could encourage more rapid adoption of threat assessment methods. The process in

Virginia began with 35 schools that tested the new model in the 2001–2002 school year, and over a 10-year period it has reached more than 1,000 schools. Most of these schools were trained in 1-day workshops held by their school system. Many school divisions recognized the need to sustain use of the model by holding training sessions for new staff members in later years, and several of the largest school divisions developed their own training program with in-house trainers.

After the 2012 shooting at Sandy Hook Elementary School in Connecticut, the governor of Virginia established the Task Force on School and Campus Safety, which recommended that all public schools be required to establish threat assessment teams. This proposal was signed into law in 2013 (Virginia Code § 22.1-79.4). The Virginia state government then began to sponsor regional training workshops and a train-the-trainer program to expedite the process of implementing and maintaining threat assessment teams in all its state schools.

NOTES

1. Schools serving special populations, such as alternative, correctional, preschool, and technical schools, were not included in these analyses because their suspension policies and attendance requirements could not be appropriately compared to the other schools. However, threat assessment is used in many of these schools.

2. This information is available to the public on the Virginia Department of Education website: http://www.doe.virginia.gov/statistics_reports/.

3. In 2013, the Virginia Student Threat Assessment Guidelines were recognized as an evidence-based program in the National Register of Evidence-Based Programs and Practices (NREPP; http://www.nrepp.samhsa.gov/ViewIntervention.aspx?id=263). This is an important milestone in light of the movement in American education to adopt evidence-based practices. NREPP is a scientific review

process operated by the Substance Abuse and Mental Health Services Administration of the U.S. Department of Health and Human Services.

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School Effectiveness and School Improvement
Vol. 19, No. 3, September 2008, 319–332

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Response of school personnel to student threat assessment training

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(*Received 12 October 2007; final version received 17 April 2008*)

School safety has become an important area of concern for school improvement. This study examined the effects of staff training as means of improving school responses to student threats of violence. A multidisciplinary sample of 351 staff from 2 school divisions completed pre-post training surveys as part of a 1-day training program using the *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006). Analysis of pre-post surveys found large changes in staff attitudes toward school safety and violence prevention efforts. There was a substantial decrease in concerns about school homicide and increased awareness of effective violence prevention efforts. There was a drop in support for zero tolerance and profiling approaches, along with increased knowledge of threat assessment principles and concepts. These changes were sustained across school divisions serving a challenging urban population and a more affluent, suburban population. Similar effects were found across all school personnel. These findings demonstrate the viability of training staff in a student threat assessment approach.

Keywords: student violence; threat assessment; school safety; professional developments

Introduction

School safety is a relatively new topic for the field of school effectiveness and school improvement research. Traditionally, school effectiveness research has focused on student achievement, and school improvement efforts have aimed at teaching and learning outcomes (Creemers, 2002). In previous decades, safety may have been taken for granted and its role overlooked in effective schools, but as Roland and Galloway (2004) observed, ''positive social behaviour may be a necessary, but not a sufficient condition for good academic outcomes'' (p. 243). A developing body of evidence points to school safety as an important condition for learning. Safe and orderly schools are necessary so that teachers can devote their time and energy to instruction and students can engage in learning without being distracted by safety concerns (Bowen, Bowen, & Ware, 2002; Osher, Dwyer, & Jackson, 2004). School safety can affect all students (and teachers), whether they are victims, nonvictims, or violators. Many studies show that victims of aggression suffer from impaired concentration, motivation, and engagement in learning that leads to lower academic achievement (Graham, Bellmore, & Mize, 2006; Juvonen, Nishina, & Graham, 2000).

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ISSN 0924-3453 print/ISSN 1744-5124 online

DOI: 10.1080/09243450802332184
http://www.informaworld.com

The most prominent school improvement efforts concerning student aggression and school safety have taken place in the field of bullying prevention, starting with the Olweus Bullying Prevention Program (Olweus, 1993) and a series of nationwide school improvement efforts in Norway (Roland, 2000). A common theme across school improvement initiatives aimed at bullying has been efforts to increase teacher awareness of bullying as a problem and willingness to intervene when bullying is identified (Olweus, 1993; Smith, Schneider, Smith, & Ananiadou, 2004). Ma's (2002) research on middle school bullying found that a positive disciplinary climate was associated with reduced levels of bullying. Roland and Galloway (2004) emphasized the importance of consensus and cooperation among school staff for school effectiveness and school improvement. This is particularly important for school safety because consensus among school staff is vital to implementing efficient and effective responses to student threats of violence.

The present study investigated a relatively new model to address student threats and improve school effectiveness through the use of a threat assessment approach. Threat assessment focuses on using a problem-solving approach to investigate student threats of violence rather than methods such as zero tolerance (i.e, suspension or expulsion). We evaluated whether threat assessment training would make school personnel more willing to distinguish serious from less serious threats and to endorse attitudes consistent with a problem-solving approach to student threats of violence.

Student threats of violence

The landscape of school safety in the USA changed dramatically with the eruption of a series of rampage school shootings in the 1990s. Especially after the 1999 shooting at Columbine High School, educational administrators in the USA came under pressure to assure the public that schools are safe and secure (Cornell, 2003). The shootings in 2005 at Red Lake High School in Minnesota, in 2006 at the Amish school in West Nichols Mines, Pennsylvania, and in 2007 at Virginia Tech, garnered worldwide attention and have kept the issue of school safety in the foreground of national concerns. School shootings that killed 18 people in Erfurt, Germany, in 2002 (CNN, 2002) and 8 people in Tuusula, Finland, in 2007 (CNN, 2007) demonstrated that the problem is not confined to the USA. For these reasons, school safety is a valid consideration in the school effectiveness and school improvement movement.

Although the likelihood that a student will commit a serious act of violence at school is low, and schools enjoy a lower rate of violent crime than most other settings (Cornell, 2006; DeVoe, Peter, Noonan, Snyder, & Baum, 2005), student threats to commit a violent act (especially to assault a peer) are relatively common (Singer & Flannery, 2000). Moreover, students are stimulated to make even more threats following a high profile incident. For example, in the 50 days after the Columbine shooting, Pennsylvania schools reported 354 threats of school violence, compared to 1 or 2 threats per year before 1999 (Kostinsky, Bixler, & Kettl, 2001). The combination of high threat rates and low likelihood of violence creates a serious dilemma for school authorities, who must take all threats seriously because the potential consequences are so severe.

The American response to school shootings was not guided by a working model or theory of violence prevention. Instead, schools substantially increased their safety and security measures and paid relatively little attention to preventive measures. Many schools installed security devices such as metal detectors and video monitors and employed increasing numbers of law enforcement officers and security officers (e.g., Flaherty, 2001; Hill, 1998).

One of the most important policy changes was the expansion of zero tolerance discipline (Skiba & Rausch, 2006). The National Center for Education Statistics report *Violence and Discipline Problems in U.S. Public Schools: 1996–1997* (Heaviside, Rowand, & Farris, 1998) defined zero tolerance as a policy that mandates predetermined consequences or punishments for specified offenses and reported that 94% of all schools have zero tolerance policies for weapons or firearms. Zero tolerance typically refers to a policy of mandatory expulsion or long-term suspension for violation of a school prohibition. The critical feature of zero tolerance is that punishment is applied without consideration of the student's intent or the circumstances of the violation. Minor and unintentional violations are treated like more serious ones. As a result, there have been numerous cases of students being expelled for seemingly minor offenses such as bringing a plastic knife to school, pointing a finger like a gun, or shooting a paper clip with a rubber band (Cornell, 2006; Skiba & Rausch, 2006).

Despite the widespread adoption of zero tolerance, scientific reviews indicate little or no support for it as a prevention method (Arcia, 2006; Skiba & Rausch, 2006). There are no empirical studies demonstrating that zero tolerance increases school safety. Skiba and Peterson conducted a 4-year study which found that, over the course of the 4 years, schools with a zero tolerance policy had higher levels of crime than schools without a zero tolerance policy (Skiba & Peterson, 1999). Furthermore, the consequences for students can be severe. Students who have high suspension rates are five grades behind their peers based on reading scores (Arcia, 2006) and are three times more likely to drop out of school (Skiba & Peterson, 1999). Zero tolerance has been described as "ineffective as a deterrent, unproductive in teaching appropriate behavior, and useless in promoting a safe school climate" (Arcia, 2006, p. 360). Therefore, multiple agencies sought to develop an alternative approach to address student threats of violence over the last decade.

Development of the threat assessment approach and guidelines

Within 3 months of the Columbine shooting, the Federal Bureau of Investigation (FBI)'s National Center for the Analysis of Violent Crime held a national conference on school shootings that included experts in law, mental health, and education and involved an examination of schools that had either experienced or averted a rampage shooting (O'Toole, 2000). One purpose of the conference was to consider the advisability of a profiling approach to the prevention of school violence. The basic theory of criminal profiling is that offenders who commit similar types of crimes have a common set of behavioral or psychological characteristics that can be used to identify them.

Conference experts concluded that there was no profile or set of individual characteristics that could be used to accurately identify school shooters within the general student population and advised against a "profiling" approach. However, it was noted that almost all of the students who committed rampage shootings had communicated direct or indirect threats of violence in the weeks or months prior to their violent attack, but those threats were not reported to authorities or were not adequately investigated. (The students did not necessarily directly threaten their intended victims; more often, they talked about committing a violent act or confided their intentions to classmates.) In contrast, in those schools where a shooting had been averted, the student's threatening statements were reported to authorities, investigated, and found to be a serious threat that prompted protective action. These observations led the FBI to recommend that schools establish procedures to investigate and respond to student threats (O'Toole, 2000).

The Secret Service conducted its own study of school shootings and reached similar conclusions about the inadvisability of developing a school shooter profile (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). In a further report, the Secret Service, in collaboration with the U.S. Department of Education, advised schools to take a ''threat assessment'' approach to the prevention of targeted violence (Fein et al., 2002). Threat assessment was developed by the U.S. Secret Service as a systematic means of determining whether an individual poses a serious threat to commit an act of targeted violence (Fein, Vossekuil, & Holden, 1995).

Although both the FBI and Secret Service reports (Fein et al., 2002; O'Toole, 2000) made a compelling case for student threat assessment, schools had no experience with this approach and there were many questions concerning the practical procedures that should be followed, how the process would work, and what the outcomes would be. This is a familiar array of questions in the school effectiveness field (Creemers, 2002). In response to these questions, researchers at the University of Virginia, in collaboration with educators from two local school divisions, developed a set of guidelines for school administrators to use in responding to a reported student threat of violence (Cornell, 2003). The rationale for this approach was that a group of educational researchers and psychologists who were designing the protocol would benefit from the knowledge and advice of experienced school administrators, school resource officers, and school psychologists.

The school administrators urged that the procedures needed to be efficient and streamlined in most cases, because most student threats are not serious threats of violence. Therefore, the guidelines included a decision-tree that began with an initial assessment of the seriousness of the threat, followed by a determination whether the case could be easily resolved as a transient threat or would require more extensive assessment and protective action as a substantive threat. In the most serious cases, a multidisciplinary team would conduct a comprehensive safety evaluation that would include both a law enforcement investigation and a mental health assessment of the student.

Implementation of the threat assessment approach

During the 2001–2002 school year, the threat assessment guidelines were field-tested in 35 public schools encompassing an enrollment of more than 16,000 students in grades K-12 (Cornell et al., 2004). School-based teams evaluated 188 student threats that involved threats to hit, stab, shoot, or harm someone in some other way. Most of the threats (70%) were resolved as transient threats, such as comments made in jest or in a fleeting moment of anger. The remaining 30% were substantive threats that required more extensive assessment and protective action to prevent the threat from being carried out. The threat assessment teams placed special emphasis on understanding the context and meaning of the threat and developing a plan to address the underlying conflict or problem that stimulated the student to resort to threatening behavior. Use of this problem-solving approach meant that relatively few students received long-term suspensions or expulsions from school. Only three students were expelled from school, although half of the students (94) received short-term suspensions (typically 1–3 days). Notably, follow-up interviews with the school principals found no cases in which the threats were carried out. These findings supported the feasibility and viability of threat assessment as a method that could be used in schools, but it remained unclear whether school staffs could be readily trained to adopt a threat assessment policy.

In order to lead schools on the implementation of a threat assessment approach, Cornell and Sheras (2006) developed 1-day training workshop and published a

145-page manual, *Guidelines for Responding to Student Threats of Violence*, based on the field-test findings and observations. The workshop covers the rationale and basic principles of threat assessment, which are then presented in more detail in the manual (detailed description provided in the Methods section). However, training educators in threat assessment poses a substantial challenge. Educators are burdened by numerous administrative and curricular responsibilities, such as mandated testing and new standards for school accreditation, which make it difficult to allocate time and energy to even 1-day of violence prevention training. Moreover, like the general public, educators have been exposed to numerous high-profile cases of school shootings that create a heightened perception of risk and imminence. Educators have the responsibility to assure student safety and anticipate intense scrutiny whenever there is a case involving a student threat, regardless of the circumstances or actual danger posed by the student. Most public schools function in an environment that strongly supports zero tolerance approaches, which are mandated by state and federal laws for many student infractions. In the state of Virginia, where this study took place, state laws substantially broaden the federal standard of zero tolerance for firearms, with the result that Virginia has one of the highest expulsion rates in the nation (U.S. Department of Education, Office of Safe and Drug-Free Schools, 2007).

It has long been recognized that for school improvement of any kind to be successful, the school culture must be altered (Creemers, 2002). Behavioral theories of effective school improvement hold that "schools do not change if the people within the schools, particularly the teaching staff, do not change" (Creemers, 2002, p. 350). Schools that are oriented toward zero tolerance necessarily have a strict and rigid structure that permits no flexibility or judgment in responding to student threats. Such an approach would be incompatible with a threat assessment model, which stresses an individualized assessment and problem-solving approach. Therefore it is necessary to examine the response of school staff to training in threat assessment and whether they would be responsive to the values, attitudes, and concepts of this different perspective.

Grodsky and Gamoran (2003) hypothesized that professional development goes beyond individual teacher improvement to benefit the entire school as a professional community. Professional development instills not only a common base of knowledge but also shared values and an atmosphere of collaboration that leads to school improvement. However, their study only examined teachers and did not consider the wider, multidisciplinary community of teachers, administrators, counselors, psychologists, law enforcement officers, and others who make up the typical American secondary school. School safety requires the involvement of all school personnel, and threat assessment is designed as a multidisciplinary approach that requires the cooperation of school administration, law enforcement, and mental health professionals. Training information and materials must address the differing values, interests, and perspectives of a professionally diverse audience and persuade them to work together on a new approach in a high-stakes situation. For this reason, it is important to examine how school personnel might differ in their response to training.

Finally, there are often substantial differences between school divisions in the student populations they serve. As Levin (2006) has noted, the field of school improvement has often failed to recognize the importance of social context and to demonstrate that an approach can be effective in high-challenge schools and communities. It is likely that educators in more affluent school divisions might be more receptive to staff training and less fearful about the problem of school violence than educators in school divisions serving a more challenging population. Schools that experience a high rate of student aggression might be more inclined to favor zero tolerance policies that minimize their contact with

students they perceive as potentially dangerous. Therefore, this study examined training effects in an affluent, suburban school division and a less affluent, urban system.

In conclusion, there were three primary objectives of this study. First, we examined whether student threat assessment training changed knowledge and attitudes about school violence from pre- to post-training. Second, we assessed how school personnel from different disciplines differed in their response to the training. Lastly, we investigated training effects among participants from two diverse school districts.

Method

Participants

The participants consisted of school personnel from two Virginia school divisions who attended separate full-day training workshops on the *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006). Because of socioeconomic and demographic differences between the two school divisions, the samples of school personnel were compared in some analyses.

Division A consisted of 66 schools enrolling more than 50,000 students in grades K-12. Fourteen percent of the students were eligible for free or reduced cost meals. The student population included 81% White, 7% African American, 7% Hispanic, and 8% other groups. The average teacher salary was approximately $59,000 per year.

Division B consisted of 21 schools enrolling more than 15,000 students. Fifty-two percent of the students were eligible for free or reduced cost meals. The student population included 36% White, 60% African American, 2% Hispanic, and 2% other groups. The average teacher salary was approximately $33,000.

School divisions were advised that the training was designed to prepare threat assessment teams for each school and that these teams would consist primarily of school administrators, psychologists, counselors, and law enforcement officers, but that other school staff could participate at the school's discretion. The school superintendent's office for each division determined which personnel would attend the workshop. As a result, the sample from Division A included 186 school personnel and the sample from Division B included 164 school personnel. Approximately three quarters of both samples were women, but there were substantial differences in ethnicity: 87% of the personnel from Division A were White and 8% were African American, whereas 44% were White and 53% African American in Division B. Additionally, in terms of occupation distribution, Division A and Division B had a fairly equal representation of principals and assistant principals attending the training (Division A = 21% and Division B = 26%). Conversely, 34% of the personnel from Division A were counselors, whereas only 10% were counselors from Division B.

Measures

The evaluation instrument was developed from a content analysis of the threat assessment training manual and information covered in the workshop. Items were developed by the researchers to cover key points from the training (e.g., that rates of school violence are declining and that the risk of school shootings is remote) as well as the ability to apply the threat assessment guidelines to classify student scenarios as transient or substantive threats. Two experienced workshop trainers reviewed the items for accuracy and appropriateness. A final pool of 20 items was presented on both the pre-training and post-training forms. Preliminary analyses indicated that 6 items did not contribute to an

increased internal consistency and so were dropped from the scale. The resultant 14 items had Cronbach's alpha values of .68 at pre-training and .72 at post-training. These values are not high enough to indicate that the knowledge scores are homogeneous measures of a single construct but are considered acceptable for more complex constructs that should be considered indexes rather than scales (Streiner, 2003).

The post-training survey also included six items designed to assess participant satisfaction with the training (e.g., "The training provided the right amount of practical information"). Analysis of the internal consistency of the six items revealed that one item ("The training could have been shorter") reduced the alpha value and so was dropped from the scale. The final five items generated an internal consistency of .86.

Procedure

Study procedures were reviewed and approved by the Institutional Review Boards at Eastern Virginia Medical School, Old Dominion University, and the University of Virginia. Separate 1-day training workshops were conducted for each school division shortly before the beginning of the school year. The two workshops were conducted by the same pair of trainers using identical training materials. All participants completed a pre-training survey form immediately before the workshop and completed the post-test survey at the end of the day.

The staff training program used the *Guidelines for Responding to Student Threats of Violence* manual (Cornell & Sheras, 2006), which was designed to allay fears of violence and persuade staff to adopt a prevention-oriented, threat assessment approach to student threats of violence. The manual has received positive reviews by experts in school safety, school psychology, and violence assessment (Virginia Youth Violence Project, 2008). The 6-hr training provided a comprehensive overview of the manual and was divided into five sessions. The first session covered the nature and extent of violence in schools and the rationale for using a threat assessment approach as opposed to a zero tolerance approach. This session corresponds to the first chapter of the manual.

The second session described the composition of the threat assessment team and provided a step-by-step review of the threat assessment procedure and its decision tree. This session corresponds with chapters 2–4 of the manual, which describe the team, the resolution of transient threats, and the response to substantive threats, respectively.

The third and longest session covered psychological factors relevant to a potentially violent student and legal issues concerning confidentiality of student records and liability for student violence. This session condenses chapters 5–10 in the manual, which have much more detail than can be covered in an oral presentation. In the manual, the 5th chapter explains in detail how to conduct a mental health assessment of a student who has made a very serious substantive threat, including lists of interview questions, a template for a written report, and a sample completed report. The 6th chapter describes typical pathways to violence (such as distinguishing youth engaged in antisocial behavior from youth who are psychotic) that the team should be prepared to identify. The 7th chapter provides questions and answers to typical legal and procedural questions and the 8th chapter summarizes research findings from the field study of the guidelines. Chapters 9 and 10 cover strategies for schoolwide violence prevention and recommendations for working with students receiving special education services, respectively.

The fourth session consisted of small group analysis and discussion of three case exercises. The manual provides 16 additional case exercises in the appendix in a format that allows the teams to test themselves. The appendix also includes forms for

documenting a threat assessment and creating behavior support plans that can be freely photocopied by school staff. The final session, corresponding to the final chapter in the manual, reviewed the steps in implementing a threat assessment approach and any final questions or concerns.

Results

A 2 × 2 repeated measures analysis of variance (ANOVA) was used to examine pre-post differences in threat assessment knowledge for the two school divisions (see Table 1). There was a significant main effect for time, indicating a mean improvement from pre- to post-training, $F(1, 349) = 1671, p < .001$, $\text{eta}^2 = .83$. There was also a difference between school divisions A and B, $F(1, 349) = 69.74, p < .001$, $\text{eta}^2 = .17$. Post-hoc analyses of group means indicated that school Division A obtained higher knowledge scores than school Division B on both pre- and post-training surveys. The interaction between school division and time was also statistically significant, $F(1, 349) = 12.58, p < .001$, $\text{eta}^2 = 0.04$, indicating greater change in Division B.

In follow-up to the ANOVA, we conducted matched pairs *t* tests on each of the 14 items, in order to assess the strength of association for each item (see Table 2). All items showed a statistically significant ($p < .001$) change, with effect sizes (*d*) ranging from .28 to 1.57. These effect sizes are associated with substantial changes in the views endorsed by training participants (detailed tables are available upon request). For example, prior to training, only 18% of school personnel (marking *agree* or *strongly agree*) recognized that violence in schools has actually decreased during the past 10 years school, but after training more than 90% recognized this fact. Prior to training, about one in five participants (21.1%) had concerns that a homicide could occur in their school and another 23% were uncertain; whereas after training, only 5.4% were concerned and 9% were uncertain about a homicide, with a full 84.9% not concerned. Well over half of participants (58.7%) agreed with the need for zero tolerance before training, compared to just 12.2% after training. Recognition that violence prevention programs could reduce school violence increased from 41% to 90.1%.

The post-training satisfaction items indicated that the vast majority of participants had a favorable view of the training. Overall, 90% of the participants agreed that the training "improved my understanding of school violence, 90% agreed that the "resource materials (handouts, audiovisuals) enhanced the training," 94% agreed that "I understand the basic concepts and guidelines for conducting a threat assessment, 91% agreed that "the training contained the right amount of practical information," and 94% agreed the training "will be helpful to me in responding to student threats of violence" (see Table 3). The

Table 1. Pre-post training effects for two school divisions.

	Pre-training		Post-training	
School Division	*M*	(*SD*)	*M*	(*SD*)
Division A	46.7	(6.46)	61.8	(5.56)
Division B	41.0	(6.12)	58.9	(6.41)
Combined	44.0	(6.86)	60.5	(6.13)

Note: Items were answered on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). In order to generate a total composite score, items were recoded so that higher scores indicated responses in the desired direction. Total scores for the 14 items could potentially range from 14 to 70.

Table 2. Pre-post changes in training survey items.

Training Survey Items	Pre-training	Post-training	*t* value[1]	*d*
Attitudes and concerns about school violence				
1. Violence in schools has increased over the past ten (10) years. (*Disagree*)	2.14	4.58	29.4	1.57
2. I am concerned that a homicide could occur in my school. (*Disagree*)	3.54	4.29	11.9	0.63
3. The probability that a student will kill someone at school is so low that the average school will experience it about once every 12,000 years. (*Agree*)	2.59	4.74	27.3	1.46
4. The typical school violence prevention program can reduce fighting by 50%. (*Agree*)	3.30	4.58	19.5	1.04
5. Profiling is an effective method to identify students who may commit violent acts. (*Disagree*)	3.43	4.57	15.32	0.82
6. We need zero tolerance for student threats of violence in my school. (*Disagree*)	2.35	4.05	21.0	1.12
Knowledge of threat assessment guidelines				
7. A safety plan should be implemented for a transient threat. (*Disagree*)	2.58	3.95	15.82	0.84
8. If a student threatens an act of violence, immediate suspension is necessary. (*Disagree*)	3.08	4.07	13.44	0.72
9. When deciding whether a threat is transient or substantive, you should consider the student's age, credibility, and previous discipline history. (*Agree*)	3.84	4.21	5.17	0.28
10. If the student's behavior constitutes a serious discipline violation, it should automatically be deemed a substantive threat. (*Disagree*)	2.74	3.70	12.66	0.68
11. In order to collect more accurate information when conducting an interview with a student, the student should be reassured that any information reported is confidential. (*Disagree*)	3.27	4.40	15.14	0.81
12. Specific plausible details are an indication that a threat is probably substantive. (*Agree*)	3.96	4.26	5.64	0.30
13. Conflict between students of equal status and strength constitutes bullying. (*Disagree*)	3.60	4.58	14.06	0.75
14. Mental health assessments (as part of a threat assessment) are not designed to predict violence, but to understand what motivated the student to make a threat and how to prevent violence. (*Agree*)	3.66	4.69	16.29	0.87

Note: [1]All comparisons are statistically significant at $p < .001$. $N = 351$. Items were answered on a 5-point scale ranging from *Strongly Agree* to *Strongly Disagree*. The desired response is indicated after each item in parentheses. Items were recoded so that higher scores indicate responses in the desired direction.

correlation between pre-training knowledge and training satisfaction was significant, $r = .15$, $p < .05$, as well as the correlation between post-training knowledge and satisfaction, $r = .28$, $p < .001$.

Analyses of occupational differences combined school divisions A and B so that there would be larger cell sizes for each occupational category. A 2 × 5 repeated measures analysis of variance (ANOVA) was used to examine pre-post differences in threat assessment knowledge for the five largest occupation categories (principals, psychologists, counselors, social workers, and officers). As would be expected, there was again a significant main effect for time, indicating a mean improvement from pre- to post-training, F (1, 247) = 936.44,

$p < .001$, $eta^2 = .79$. There was also a difference between occupation categories, F (4, 247) = 12.59, $p < .001$, $eta^2 = .20$. The interaction between time and occupation was not statistically significant. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for the school psychologists was significantly higher than all other occupations and that officers scored lower than all other occupations, but there were no significant differences among guidance counselors, principals, and social workers (see Table 4). Five paired-samples t tests were conducted to follow up the significant main effect for time. We controlled for family-wise error rate across these tests using Holm's sequential Bonferroni approach. Differences in mean ratings of knowledge of the threat assessment procedures were significantly different across occupations from pre-training to post-training. All occupations showed a statistically significant ($p < .001$) change, with effect sizes (d) ranging from .76 for Principals to .88 for Social Workers (see Table 4). Lastly, a one-way ANOVA was conducted on overall satisfaction scores for each occupation. The analysis showed no statistically significant differences among occupations in satisfaction with the training.

Discussion

The U.S. federal government's guiding legislation for schools, the No Child Left Behind Act of 2001 (NCLB) declares that school safety is a prerequisite to an orderly environment

Table 3. Means and standard deviations for post-training satisfaction items.

	School District A		School District B	
Items	*M*	(*SD*)	*M*	*SD*
This training improved my understanding of student violence.	4.4	(0.9)	4.5	(0.6)
The resource materials (handouts, audiovisuals) enhanced the training.	4.3	(0.7)	4.4	(0.8)
I understand the basic concepts and guidelines for conducting a threat assessment.	4.5	(0.6)	4.5	(0.6)
The training contained the right amount of practical information.	4.3	(0.6)	4.3	(0.7)
This training will be helpful to me in responding to student threats of violence.	4.5	(0.7)	4.5	(0.7)

Note: Items were answered on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). $N = 351$.

Table 4. Occupation differences for threat assessment knowledge pre- and post-training.

	Pre-training		Post-training			
Occupation (*n*)	*M*	(*SD*)	*M*	(*SD*)	*t*	η^2
Principals (82)	46.1	(6.7)	60.1	(6.3)	−16.04*	.76
Psychologists (32)	50.7	(6.4)	64.6	(4.2)	−13.20*	.85
Counselors (79)	44.0	(5.4)	61.0	(5.2)	−22.18*	.86
Officers (31)	41.0	(6.9)	57.8	(5.9)	−11.06*	.80
Social Workers (28)	44.7	(5.3)	61.4	(5.4)	−13.93*	.88

Note: *$p < .001$. Items were answered on a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). In order to generate a total composite score, some items were recoded so that responses were in the desired direction. Total scores could potentially range from 14 to 70. $N = 351$.

conducive to learning (Title IV, Part A, SEC. 4002). School safety is clearly on the agenda of school administrators as an important concern, but there is relatively little research on school safety improvement. The present study contributes to this gap in the literature by examining the response of school staff members to training on student threat assessment.

School personnel who attended training in student threat assessment showed substantial changes in their knowledge and attitudes regarding school violence, with a statistically large overall effect size (η^2) of .83. Personnel in both school divisions showed a clear decrease in fears of school violence and the adoption of attitudes consistent with a threat assessment approach. They expressed a willingness to adopt a problem-solving approach to student threats and conflicts, as distinguished from a more punitive, zero tolerance approach. They rejected profiling as a way to identify dangerous students and instead demonstrated understanding that student threats can be investigated and resolved. They differentiated between transient and substantive threats and understood that substantive threats require protective action to prevent an act of violence from being carried out.

The school effectiveness and school improvement literature highlights the importance of professional development as a means of strengthening the professional community in schools. Professional development has the function of not only individual staff benefits but also a schoolwide effect of improving collaboration and achieving greater consistency in values and attitudes (Grodsky & Gamoran, 2003). The results of the student threat assessment training showed that school staff across disciplines achieved greater consensus on their perceptions of school violence and their understanding of how student threats can be addressed.

Research on bullying prevention draws special attention to changing the professional culture in the school (Roland & Galloway, 2004). Like student threat assessment training, bullying prevention training attempts to give staff a shared understanding of student aggression and a common commitment to addressing it (Olweus, 1993).

The changes in staff attitudes toward school safety and student threats of violence are noteworthy because they have direct implications for school safety policies and disciplinary practices. Virginia's expulsion rate of .169 per 1,000 students is among the top five in the nation (U.S. Department of Education, National Center for Education Statistics, 2004). Moreover, Virginia has been at the forefront of nationwide efforts to place law enforcement officers in its schools, with officers in 95% of its high schools and 74% of its middle schools (Schuiteman, 2007). The endorsement of threat assessment by two of the nation's leading law enforcement agencies (O'Toole, 2000; Vossekuil et al., 2002) may help school personnel to accept the shift to a less punitive and decidedly preventive approach.

Another positive finding is the consistency of results across occupational groups. Administrators, mental health professionals, and law enforcement officers alike expressed satisfaction with the training, and all groups showed similar changes in attitudes and knowledge regarding threat assessment. This is a noteworthy accomplishment for a training program, because these groups have markedly different disciplinary backgrounds and perspectives and play different roles in maintaining school safety and dealing with potentially dangerous students.

Despite the consistency across occupations, there were differences between the staffs of the urban school division and the more affluent suburban school division. The urban school staff members began the training with attitudes that were further removed from the training goals than those of the suburban staff members. The urban school serves a markedly less affluent population and has a higher rate of serious disciplinary violations. Although Division B enrolled approximately 1/3 as many students, this urban district reported approximately 5,900 serious disciplinary violations in the 2005–06 school year,

compared to just 2,700 in the larger, suburban Division A (Virginia Department of Education, 2007). Nevertheless, both divisions showed large training effects and the gap between the school divisions was narrower after training. These observations support the effectiveness of training in both types of school divisions, despite large differences in the rates of disciplinary violations they experience. The school improvement literature stresses that it is especially important to demonstrate effects in high-poverty schools where the need is greatest (Levin, 2006). Nevertheless, Levin (2003) suggested that the problems in high-poverty schools are linked to non-academic, community factors such as poor nutrition and inadequate housing, so that efforts to improve teaching and learning can only achieve limited success. School safety may be still another non-academic factor.

All of these results must be tempered by the caveat that changes were measured immediately after training, when participants might be most inclined to agree with what they had been taught. It would be a useful next step to examine the long-term stability of training effects and to show how they affected decision-making in actual cases. A field-test of threat assessment in two other Virginia school divisions did demonstrate that school personnel resolved 188 student threats of violence with only three expulsions and no suspensions greater than 10 days (Cornell et al., 2004). A study of threat assessment in 209 cases in Memphis City Schools found that just five students were expelled without placement in an alternative setting (Strong & Cornell, in press).

Conclusions

During the 1990s, many schools systems implemented zero tolerance policies and instituted a variety of safety and security procedures in response to fears of student violence. At the same time, student expulsions increased dramatically and there were many cases of students being removed from school for seemingly minor transgressions (Skiba & Rausch, 2006). The U.S. Department of Education, in conjunction with the Secret Service, recommended that schools adopt a threat assessment approach that focuses on prevention rather than security, and discouraged efforts to identify allegedly dangerous students through profiling (Vossekuil et al., 2002). The present study found positive effects of a staff training program using the *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006), which was designed to allay fears of violence and persuade staff to adopt a prevention-oriented, threat assessment approach to student threats of violence. Future research should be aimed at demonstrating the long-term impact of this training on the response of school personnel to student threat incidents.

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JOURNAL OF SCHOOL HEALTH

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RESEARCH ARTICLE

An Online Educational Program to Increase Student Understanding of Threat Assessment

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ABSTRACT

BACKGROUND: Threat assessment is a widely recommended practice used by schools to investigate and respond to student threats of violence; however, students are often reluctant to disclose threats.

METHODS: We developed an online educational program for students to increase their understanding of threat assessment and the need to report serious threats. We investigated 2 research questions: (1) How are student characteristics of sex, grade level, and ethnicity/race associated with student knowledge of threat assessment and willingness to report threats? (2) Does the program increase knowledge of threat assessment and willingness to report threats? The sample consisted of 2338 students from 6 middle schools and 3 high schools.

RESULTS: Prior to program completion, boys were less willing than girls, and older students were less willing than younger students, to report threats. Post-program questions revealed that the program significantly increased knowledge and willingness to report threats across student groups, with effect sizes (Cohen's d) ranging from small (.30) to large (1.43).

CONCLUSIONS: This program promotes school safety by teaching students about threat assessment and increasing willingness to report threats. The program is available online for other schools to use.

Keywords: threat assessment; school safety; violence prevention.

Citation: Stohlman SL, Cornell DG. An online educational program to increase student understanding of threat assessment. J Sch Health. 2019; DOI: 10.1111/josh.12827

Received on December 19, 2017
Accepted on August 11, 2018

Student violence is an important health concern in schools. According to the National Center for Education Statistics, there were approximately 486,400 violent victimizations in schools during the 2013-2014 academic year.[1] About 65% of public schools reported at least one incident of violence and 13% reported one or more serious acts of violence.[1]

School shootings are the most severe and feared form of school violence, but they are statistically rare events; the average school can expect a student homicide once every 6000 years.[2] Highly publicized shootings perpetuate the notion that schools are unsafe. As a result, authorities have devoted their limited resources to increased security measures and zero tolerance disciplinary practices,[2] despite a lack of evidence that they effectively increase school safety.[3] The Federal Bureau of Investigation (FBI) published a report on school shootings concluding that threats often signal potential violent incidents.[4] In their reports on school shootings and school safety, the US Secret Service and the FBI recommended that schools implement a threat assessment approach.[4,5] Furthermore, threat assessment has been endorsed in reports by the American Psychological Association and the National Association of School Psychologists.[6,7]

Threat assessment is a prevention strategy used by schools to investigate and respond to student threats of violence. Student threats encompass any forms of communication or behavior that express intention to harm someone.[8] After a threat is reported, threat assessment teams determine whether an individual poses a threat and intervene with individualized plans.

Schools implementing threat assessment have found that it is a valuable approach to violence prevention. Threat assessment, and in particular, the Virginia Student Threat Assessment Guidelines (VSTAG), are ways to resolve threats while avoiding exclusionary discipline.[9] Cornell et al.[10] examined

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This project was supported in part by Grant NIJ-2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, US Department of Justice.

the outcomes of 188 student threat cases from 35 schools. The threat assessment teams evaluated the seriousness of each threat to take appropriate steps to prevent violence. Ultimately, none of the 188 threats were carried out. Strong and Cornell[11] examined the outcomes of 204 cases in Memphis City Schools. For each case, the threat assessment team made recommendations to students, parents, and teachers to promote school safety and address the threat. In most of these cases, students were able to return to their school and none of the threats was carried out.

Cornell et al.[12] conducted a year-long randomized controlled study of 40 schools with 20 randomly selected to receive VSTAG training and 20 in a wait-list control group. Across all schools, 201 students made threats and of those, only 7 students attempted to carry them out. There were significant differences in how schools responded to the threats. Students who made threats in schools using VSTAG were less likely to receive long-term suspensions or an alternative school placement, and more likely to receive counseling services. This study highlights an important aspect of the VSTAG model; it guides school authorities to take a less punitive and more constructive, problem-solving approach to student threats.

Cornell et al.[13] compared the VSTAG model to other threat assessment approaches. They found that students in high schools using VSTAG were more willing to seek help for bullying and threats of violence, observed less bullying, and reported more positive school climate than students in schools using alternative approaches.[13]Nekvasil and Cornell[14] conducted a quasi-experimental study that extended the Cornell et al.[13] findings to middle schools. They found that middle schools using VSTAG reported more positive school climate and lessbullying.[14]

One important benefit of threat assessment is that it helps schools to avoid over-reacting to student threats that are not serious. For example, there are widespread reports of students being suspended from school for relatively minor misbehavior, such as pointing a finger like a gun.[15] Studies have found that schools using threat assessment see decreases in out-of-school suspension.[16]A statewide sample of cases found that only 47% received a school suspension and fewer than 0.9% were expelled.[17]

Threat assessment is a relatively new and unfamiliar approach in schools. For threat assessment to be effective, school teams must be taught to identify threats and resolve conflicts that may have stimulated threats. Two studies have examined the effects of threat assessment training on school personnel. Cornell et al.[16] investigated changes in threat assessment knowledge after staff training. Pre-post evaluations showed that knowledge of threat assessment principles significantly increased. Allen et al.[18]also examined changes in knowledge and attitudes following staff training. Pre-post surveys revealed that after training, school personnel had decreased concerns regarding school homicide, decreased support for zero tolerance approaches, and increased knowledge of threat assessment principles and concepts. These studies show that threat assessment training can modify staff attitudes regarding school safety and increase threat assessment knowledge; however, there are no studies evaluating threat assessment training programs for students. This is an important research gap because students are both the most common targets of threats and the most likely to know about threats.[5,8]A needs assessment conducted in Virginia public schools found that school authorities wanted help educating their students about threat assessment.[19]

Need for Student Understanding of Threat Assessment

Although serious acts of violence in schools are infrequent, student threats of violence are relatively common.[20,21]According to the National Center for Education Statistics (NCES), in 2013, 47% of public schools reported one or more threats without a weapon, and 9% of public schools reported one or more threats with a weapon.[22]

There have been several incidents where serious acts of violence were prevented when students reported threats. Daniels et al.[23] investigated averted acts of school violence in 30 schools across 21 states. They found that in the majority of cases, plots were discovered because students came forward and alerted school personnel to the threat. These student reports often initiate the threat assessment process; there are numerous news reports of potential school shootings that were averted because students came forward to report threats. For example, in 2017, 2 Florida middle school students planned a mass school shooting.[24] They took steps to carry out their plan; for example, they devised a signal to open fire and set a date for the shooting. Students heard rumors about their plot and reported the threat. Police officers searched the students' homes and retrieved firearms. A similar incident occurred in a California high school; students overheard 4 classmates discussing a plan to kill other students and notified school personnel.[25]Authorities arrested the students, and found plans detailing where, when, and how the students would carry out a mass shooting.

Threat Reporting

Reports by both the FBI and Secret Service cautioned that students often are unwilling to report threats to school authorities.[4,5] Research suggests that many factors can influence this reluctance. Williams and Cornell[26] surveyed 542 students regarding their willingness to report threats of violence. Students

were less inclined to make a report if they perceived their teachers as tolerant of bullying or threatening behavior. Other studies have found that students are less willing to report threats if they do not perceive the threat as serious, and if they expect that reporting a threat will lead to being labeled a snitch.[27,28] Although these studies identify reasons why students are unwilling to report threats, there is a paucity of research investigating whether this reluctance can be changed.

Previous studies show that the demographic characteristics of sex, grade level, and race/ethnicity are correlated with student willingness to report threats. Syvertsen et al.[29] asked 1933 middle school and high school students how they would respond to a hypothetical scenario about a peer's dangerous plan. Female students expressed greater willingness than male students to tell an adult. Additionally, they found that middle school students were more willing to report threats than high school students. Other studies have found that older students are less likely to report threats than younger students.[26,30]

Millspaugh et al.[31] investigated racial/ethnic factors associated with student willingness to report threats. They found that, in comparison to other racial groups, black students were the least likely group to report a threat. With the exception of Asian students, minority students were less willing to report threats than white students.

Nekvasil and Cornell[28] investigated student threats in a sample of 3756 secondary school students. The students reported how many times they were threatened by peers in the past 30 days, whether they reported the threat to anyone, and whether the threat was carried out. Twelve percent of students reported that a classmate had threatened to harm them in the past 30 days, but only 26% of these threats were reported to school authorities. Most threats (91%) were not carried out. Of the threats that were later carried out, only 31% of students had reported the threat to school authorities. Students cited several reasons for not reporting threats including not perceiving the threat as serious, not wanting or needing help, and fearing retaliation.

Current Study

Previous studies have investigated student threat reporting; however, none has attempted to educate students about threat assessment and increase their willingness to report threats of violence. O'Toole[4] suggested that to increase student threat reporting, educators should teach students about threat assessment and explain how to report threats and how threats are handled after they are reported. O'Toole[4] specifically recommended that school authorities address the common misperception that reporting threats is snitching.

In 2013, Virginia passed legislation (§ 22.1-79.4) mandating the establishment of threat assessment teams in all public schools.[32] As part of a federally funded project to improve the implementation of threat assessment in Virginia schools, our research team developed an online educational program to inform students about threat assessment and increase their willingness to report threats.

The first research question was: ''How are student characteristics of sex, grade level, and ethnicity/race associated with student knowledge of threat assessment and willingness to report threats?'' Based on prior research, we hypothesized that male students would be less willing to report threats than female students and that high school students would be less willing to report threats than middle school students. We also hypothesized that black and Hispanic students would be less willing to report threats than white students. The second research question was: ''Does the online educational program increase student knowledge of threat assessment and willingness to report threats?'' We hypothesized that student knowledge and willingness would improve after completing the educational program.

METHODS

Participants

We recruited 6 middle schools and 3 high schools to participate in this study. The principals determined how students would be invited to complete the program. Five schools invited all students, 2 schools invited all students in a certain class (eg, Health/Physical Education), and 2 schools invited all students in a specific grade.

All students were eligible to participate, except for those with a limited ability to understand and read English. The sample consisted of 2338 students: 690 (29.5%) 6th graders, 455 (19.5%) 7th graders, 421 (18%) 8th graders, 366 (15.7%) 9th graders, 211 (9%) 10th graders, 135 (5.8%) 11th graders, and 60 (2.6%) 12th graders. There were 1179 (50.4%) girls and 1159 (49.6%) boys. The racial/ethnic breakdown was 56.2% white, 6.8% black, 12.6% Hispanic or Latino, and 24.4% other.

Procedure

The educational program was based on a statewide needs assessment and input from a panel of threat assessment experts. Using this information, our research group developed the content for the program, sent drafts to both a research and a practice advisory board, and synthesized their feedback to create the program. It consisted of slides and narration by a male

Table 1. **Student Knowledge Scale**

Questions	Pretest Percent Answering Correctly	Posttest Percent Answering Correctly
All Virginia public schools are required to have a threat assessment team.*	38.0	91.0
My school has a threat assessment team.	32.0	82.6
Threat assessment teams include administrators, counselors, teachers, and law enforcement officers.	62.2	95.0
Threat assessment teams investigate threatening statements or actions by students.	68.9	93.5
A threat assessment team will automatically suspend a student for making a threat. (False)	22.5	72.1
Students who make threats will most likely be arrested. (False)	34.9	66.3
Most threats are not serious.	21.3	55.6
A student who says he or she is going to kill someone could be charged with a crime.	62.1	70.4
A student who sends a text threatening to kill someone could be charged with a crime.	65.6	75.7
Schools are required to notify a student's parents/guardians if it is determined that the student poses a threat to harm someone.	81.7	89.7
A threat assessment team may try counseling to prevent two students from fighting.	65.8	84.9

*This item and associated content is omitted from the national version of this online program.

and a female student that educated students about the threat assessment process. First, the narrators emphasized that schools are overall very safe places and the likelihood of a serious violent incident is low. They went on to talk about the importance of violence prevention efforts, highlighting the fact that many violent events have been averted because a student came forward to report the threat.

The narrators described the purpose of a threat assessment team and how and when to report threats to school authorities, emphasizing the importance of threat reporting. A critical message was that reporting threats is not ''snitching.'' The educational program included a video vignette in which a student learned that a classmate was planning to shoot someone at school. The student confided to a friend that he was hesitant to report the threat because he felt that he would be snitching. The friend explained that seeking help to prevent violence is not snitching and encouraged him to report the threat to school authorities. The student modeled appropriate threat-reporting by telling a school administrator about the threat.

Prior to completing the program, students were provided with instructions and informed that their responses would be anonymous. During the program, students answered a series of pre-post questions to evaluate their understanding of threat assessment and the need to report threats.

Instrumentation

Student knowledge. Eleven pre/post questions (Table 1) assessed threat assessment knowledge with statements such as ''Schools are required to notify parents/guardians if it is determined that the student poses a threat to harm someone'' and ''A student who says he or she is going to kill someone could be charged with a crime,'' with 3 response options (*yes, no*, or *do not know*). Response options were dichotomized (eg, 1 = *correct* vs. 0 = *incorrect/do not know*). Cronbach's alpha was .68 at pretest and .66 at posttest.

Student willingness to report threats. Four pre/post questions (Table 2) assessed student willingness to report threats such as ''If a student repeatedly picked on another student, I would tell one of the teachers or staff at school,'' and ''If you report a threat, you are snitching,'' with 4 response options (0 = *strongly disagree*, 1 = *disagree*, 2 = *do not know*, 3 = *agree*, 4 = *strongly agree*). Cronbach's alpha was .66 at pretest and .74 at posttest.

Demographic information. Students answered 4 questions regarding sex, grade level, and race/ethnicity.

Data Analysis

Studies show that using validity screening items improves the quality of adolescent survey data.[33,34] Student responses were screened based on a validity item: ''How many questions did you answer truthfully on this survey?'' Students chose one of 5 response options (*all of them, all but 1 or 2 of them, most of them, some of them, only a few or none of them*). Students who responded *some of them* or *only a few or none of them* were excluded from data analysis. The program was designed to be completed in less than 15 minutes, and on average, students completed the program in 12 minutes. Students were excluded from the sample if they completed the program in less than 4 minutes, because mock participants found that they could not complete the program in less than 4 minutes without skipping much of the content. Of the initial sample of 2661, 323 (12.1%) were excluded (25 < 4 minutes and 298 failed the screening item).

The 2338 participants in the analytic sample were compared to 323 participants who failed to complete the program, using simple *t* tests for grade and chi-square tests for sex and race. The noncompleters were more like to be male (55% vs. 45%), to be older (mean

Table 2. **Student Willingness to Report Threats Scale**

How Much Do You Agree or Disagree With These Statements?	Strongly Disagree %		Disagree %		Do not Know %		Agree %		Strongly Agree %	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
If a student repeatedly picked on another student, I would tell one of the teachers or staff at school.	0.8	0.9	2.8	2.2	9.2	6.9	49.8	36.8	37.4	53.2
If another student talked about killing someone, I would tell one of the teachers or staff at school.	0.8	1.0	3.7	1.4	13.7	6.6	30.4	25.7	51.5	65.3
If another student brought a gun to school, I would tell one of the teachers or staff at school.	0.6	0.8	1.0	0.7	3.5	2.9	13.3	14.1	81.7	81.6
If you report a threat, you are snitching.*	40.9	57.5	35.0	27.3	14.6	7.3	5.8	4.1	3.7	3.8

*This item was reverse scored.

grade 8.32 vs. 7.84) and identify as a race other than white (53% vs. 48%), with all differences statistically significant ($p < .05$).

To investigate the first research question, four linear regressions examined the associations of sex, race/ethnicity, and grade level with student knowledge and willingness scores before and after completing the program. Follow-up linear regressions examined whether significant differences at pretest remained at posttest. To address the second research question, separate repeated measures fixed-effects analysis of covariances (ANCOVAs) examined pre-post changes in knowledge and willingness scores. To control for student-level characteristics, sex, and race/ethnicity were included as interaction terms and grade was included as a covariate. Nesting of students within schools was controlled for in the linear regressions and repeated measures ANCOVAs by coding each school as a covariate.

RESULTS

Two linear regression analyses (Table 3) examined the associations between student-level characteristics and both knowledge and willingness pretest scores. There were no significant differences in knowledge, but for willingness, boys were significantly less willing to report threats than girls ($\beta = -.69$, $p < .001$) and older students were significantly less willing than younger students ($\beta = -.13$, $p = .04$).

Controlling for pretest knowledge, black students ($\beta = -.34$, $p = .03$) and Hispanic students ($\beta = -.34$, $p < .005$) had statistically significant posttest differences in their knowledge compared to white students. Controlling for prior willingness levels, older students ($\beta = -.12$, $p = .01$) were still less willing than younger students at posttest. Table 4 includes demographic characteristics and the pre-post means for knowledge and willingness.

The first repeated measures ANCOVA revealed statistically significant increases in knowledge scores from pretest ($M = 5.50$) to posttest ($M = 8.65$), $F(1, 2324) = 45.40$, $p < .001$. Cohen's d was 1.43, indicating a large effect size.[35] The second repeated measures ANCOVA revealed statistically significant increases in willingness to report threats from pretest ($M = 13.16$) to posttest ($M = 13.86$), $F(1, 2324) = 20.64$, $p < .001$. Cohen's d was .30, demonstrating a small effect size.[35] There were no statistically significant interactions, indicating comparable gains across student groups. Follow-up analyses examined potential differences in knowledge and willingness pre-post changes based on student selection methods. Controlling for student-level factors, there were no significant differences when students were invited by grade, or by class, in comparison to inviting all students to participate (all $ps > .05$) (Table 3).

DISCUSSION

This program increased both student knowledge of threat assessment and willingness to report threats. These findings support recommendations from education and law enforcement authorities which encourage students to report threats.[36] The program promotes school safety by providing schools with a way to educate students about threat assessment and threat reporting. Educating students and involving them in the threat assessment process can encourage students to report threats and prevent acts of violence.

Consistent with prior research, older students were significantly less willing to report threats than younger students,[30] and boys were significantly less willing to report than girls.[29] One possible explanation is that male students are less likely to perceive threats as serious. A study by Reniers et al.[37] found that boys perceived risk-taking behaviors as less risky than girls. Other studies have suggested that as students become more independent and autonomous they are less

Table 3. **Regression Analyses**

Category (N)	PreKnowledge β (SE)	PostKnowledge β (SE)	PreWillingness β (SE)	PostWillingness β (SE)
Sex[†]				
Male (1159)	−.02 (.10)	−.04 (.08)	−.69 (.10)***	−.07 (.07)
Race/ethnicity[‡]				
Black (160)	−.13 (.21)	−.34 (.15)*	−.37 (.19)	−.16 (.14)
Hispanic (294)	−.22 (.16)	−.34 (.12)**	−.20 (.15)	−.11 (.11)
Other (571)	−.06 (.13)	−.09 (.10)	−.20 (.12)	.07 (.09)
Grade level	.10 (.07)	.07 (.05)	−.13 (.07)*	−.12 (.05)**
Adjusted R^2	.01	.19	.07	.55

*p < .05.
**p < .01.
***p < .001.
[†]Female (1179) is the reference group.
[‡]White (1313) is the reference group.

Table 4. **Pre-Post Knowledge of Threat Assessment and Willingness to Report Threats**

Category (N)	PreKnowledge M (SE)	PostKnowledge M (SE)	PreWillingness M (SE)	PostWillingness M (SE)
Sex				
Female (1179)	5.50 (.10)	8.66 (.08)	13.54 (.09)	14.16 (.09)
Male (1159)	5.50 (.10)	8.64 (.08)	12.79 (.09)	13.56 (.09)
Race/ethnicity				
Black (160)	5.47 (.20)	8.50 (.16)	12.98 (.18)	13.61 (.19)
Hispanic (294)	5.38 (.15)	8.47 (.12)	13.15 (.14)	13.80 (.14)
Other (571)	5.54 (.11)	8.76 (.09)	13.16 (.10)	13.98 (.10)
White (1313)	5.60 (.07)	8.87 (.06)	13.36 (.07)	14.05 (.07)

willing to seek help from adults. Syvertsen et al.[29] found that high school students were more likely to intervene directly, but less likely to tell an adult about a peer's plan to do something dangerous.

Educators must be prepared to encounter more resistance to threat reporting from older students and male students, perhaps because they are more independent or resistant to adult authority. The educational program attempted to overcome this resistance by using student narrators and by presenting a scenario in which one student explained to another why threats should be reported.

When working with less-willing groups, school personnel may want to address student reservations about threat reporting and distinguish seeking help from snitching. Schools using VSTAG are less likely to overreact to threats, and emphasizing this to students can encourage reluctant students to come forward.

There were no demographic differences between student groups in pretest knowledge of threat assessment, but after program completion, white students scored significantly higher than black students and Hispanic students. Contrary to prior research, we did not find initial differences in willingness to report threats related to race/ethnicity. The program purposely included narrators and cast members of diverse backgrounds to engage all students. After completing the program, school personnel may want to follow-up with a class discussion to answer questions and reinforce key messages to help all students understand the basics of threat assessment.

Student knowledge is important to encourage threat reporting; even if students are willing to report threats, they benefit from knowing that their school has a threat assessment team. Prior to program completion, only 32% of students knew that their school had a threat assessment team. This is concerning, because all public schools in Virginia are required to have a threat assessment team, yet less than one-third of students knew about their school's team. After program completion 83% of students understood that their school had a threat assessment team. Although there was a significant increase in the number of students understanding that their school has a threat assessment team, there is still room for improvement. Knowledge of how their school uses threat assessment to resolve problems and help students with conflicts may encourage students to come forward.

Other studies have found that online educational programs can help prevent student aggression. For example, Timmons-Mitchell et al.[38] found that an online bullying education program led to lower bullying perpetration, victimization, and bystander passivity. Educating students about threat assessment includes them in the process and may motivate them to take action when they learn about a threat of violence.

Threat assessment offers schools a viable alternative to zero tolerance approaches. Zero tolerance discipline

was initiated in the 1990s to deter students from bringing firearms to school, but over time evolved into a general disciplinary philosophy of using school exclusion (suspension or expulsion) as an automatic response to a wide variety of disciplinary infractions.[39] Zero tolerance has been widely criticized as ineffective and potentially harmful. Notably, it does not improve student behavior and has been implicated in generating an increase in suspension rates.[39] Higher suspension rates have been associated with increased risk of academic failure and dropout, as well as involvement in the juvenile justice system, even after controlling for demographic characteristics and student attitudes toward school.[3,39-41]

Limitations

This study has several limitations. First, although the student sample was demographically diverse, it was drawn from a convenience sample of secondary schools and schools varied in how they selected students. Students who completed the program might not be representative of the general school population.

A design limitation is that the posttest questions were asked immediately following the completion of the online program. A future study could examine longer-term effects of the program through the use of delayed posttest questions and records of increased threat reporting.

Another limitation is that students endorsed high levels of willingness to report threats at pretest, leaving little room for improvement at posttest. The high endorsement of reporting might reflect social desirability. Future studies could investigate whether schools using the program see improvements in actual student reporting of serious threats.

Conclusion

In conclusion, this study provides new information about the use of an online program to increase understanding of threat assessment and willingness to report threats. There were increases in both student knowledge and willingness to report threats of violence after viewing the program. This program allows school personnel to educate students and promote school safety. By completing this program, students should learn how to identify and report threats.

IMPLICATIONS FOR SCHOOL HEALTH

Overall, the results from this study have practical implications for school health. Threats in schools are relatively common and students are the most likely group to have knowledge of a threat. Many schools have threat assessment teams that could make use of this program. A public link to a program excerpt is available on Youtube at https://www.youtube.com/watch?v=H7wI20-TN2w. The program has been revised to omit references to Virginia to make it more applicable to all schools. Access to the complete program is available from Jennifer Maeng (jlc7d@virginia.edu) at no charge upon request.

There are several ways that schools can make use of this program. The 2018 Secret Service report on threat assessment urges schools to establish a climate where students feel comfortable reporting a serious threat of violence.[42] The 2018 STOP School Violence Act has authorized funds for schools to obtain training in school safety, including the use of threat assessment teams. Schools can apply for this funding on an annual basis.[43] Schools can use the student educational program as part of a lesson on school safety which can be incorporated into a health or civics class. Students can review the program during class and then discuss it or the students can be assigned to review the program as homework and then discuss it the next day in class. Teachers can review with students regarding the importance of threat reporting and the difference between snitching for personal gain and seeking help to prevent someone from being hurt.

This project has also prepared programs for both parents and school staff. Although these programs are similar to the student program, they are a bit longer and provide more information regarding talking to students about threat reporting and identifying various types of threats. The links to these programs can be posted on a school website for easy access.

Human Subjects Approval Statement

This study (# 2016-0067-00) was approved by the University of Virginia institutional review board.

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AMERICAN PSYCHOLOGICAL ASSOCIATION

Journal of Threat Assessment and Management

ISSN: 2169-4842

http://dx.doi.org/10.1037/tam0000142

Evaluation of Threat Assessment Training for School Personnel

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Despite the widespread use of threat assessment in K–12 schools, there is a dearth of research investigating the staff training process. We evaluated the effectiveness of day-long training on the Comprehensive Student Threat Assessment Guidelines (CSTAG) in a sample of 4,666 multidisciplinary school personnel from administration, law enforcement, mental health, teaching, and other groups. Across 100 workshops conducted by 9 trainers, all discipline groups showed large and statistically significant increases in their knowledge of threat assessment from pretest to posttest. On average, participants achieved threat classification accuracy scores of 75% after completing the workshop. Over 95% of participants provided positive evaluations of the workshop and highly endorsed motivation to implement threat assessment in their schools. Overall, these findings support the use of workshop training to prepare multidisciplinary school-based threat assessment teams.

Public Significance Statement
After completing a day-long training workshop, K–12 school personnel demonstrated high levels of threat assessment knowledge, threat classification accuracy, and motivation to use principles of threat assessment in their schools. All participants showed improvements regardless of demographic, trainer-related, or environmental differences. These results are promising, given the increased demand for high-quality threat assessment training that can be disseminated on a large scale.

Keywords: threat assessment, school safety, student threats, training

School threat assessment is becoming a standard safety practice in U.S. schools (Cornell et al., 2018). In 2013, Virginia became the first state to require all K–12 public schools to establish threat assessment teams (Threat Assessment Teams and Oversight Committees, 2013). In recent years, many other states have passed similar legislation (Erwin, 2019; Woitaszewski, Crepeau-Hobson, Conolly, & Cruz, 2018). By 2018, 44% of public schools reported using a threat assessment team (Diliberti, Jackson, Correa, & Padgett, 2019). In response to the 2018 school shooting in Parkland, Florida, Congress passed the STOP School Violence Act of 2018, which unequivocally encourages the adoption of threat assessment by providing schools with funding for threat assessment training.

Federal endorsement of school threat assessment and the increasing number of states that mandate its use have created a huge demand for professional in-service training. Reports by the National Threat Assessment Center (2018) and the Federal Commission on School Safety (2018) recommend that schools use behavioral threat assessment teams. However, reports recommending the use of threat assessment say very little about the training needed to imple-

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ment it. Two investigations of school shootings identified inadequate training of school personnel as a serious problem (Goodrum & Woodward, 2016; Marjory Stoneman Douglas High School Public Safety Commission, 2019).

A comprehensive report on the 2013 shooting at Arapahoe High School in Colorado concluded that a failure in the school's threat assessment process contributed to the shooting that resulted in the murder of a student. The student who committed the fatal shooting had been identified for a threat assessment, but there were many errors and inadequacies in the process the team followed (Goodrum, Thompson, Ward, & Woodward, 2018). Neither the principal nor the assistant principal who conducted the threat assessment had received training. Additionally, the report noted that the school's threat assessment training had lasted just 2 hr and included no role-playing or completion of a mock case. Among the report's recommendations was that schools adopt a formal training curriculum and that all staff members participate in a minimum of a 1-day program with a variety of training activities beyond a lecture (Goodrum & Woodward, 2016). The report specifically recommended that Colorado schools adopt a validated threat assessment process, such as the Virginia Student Threat Assessment Guidelines.

The Marjory Stoneman Douglas High School Public Safety Commission (2019) also identified failures in threat assessment as a factor contributing to the shooting deaths of 17 people at the high school in 2018. The former student who committed the shooting had been repeatedly identified as a person of concern for a potential school shooting, and the school district had a threat assessment protocol, but the commission's report concluded that school staff members were neither properly trained nor appropriately engaged in the threat assessment process. In response to the commission's report, Florida legislation (Office of Safe Schools, 2019) mandated that all its schools use a common standardized behavioral threat assessment instrument. In 2019, the Florida Department of Education adopted the Comprehensive School Threat Assessment Guidelines (CSTAG; formerly called the Virginia Student Threat Assessment Guidelines) for statewide use and established a group of trainers in this model to lead workshops for all schools (Oliva, 2019).

Given the increased demand for evidence-based threat assessment training, it is crucial to systematically evaluate training effectiveness. Authorities in program evaluation highlight the need to measure participant learning and perceptions of training, as well as trainer effectiveness (Bradley & Connors, 2007; Kirkpatrick & Kirkpatrick, 2016). In the context of threat assessment, effective training must be delivered in a manner that facilitates learning of threat assessment principles and guidelines and promotes positive attitudes toward its implementation across trainers.

Challenges of School Threat Assessment Training

There are multiple challenges specific to school threat assessment training. The first challenge is that threat assessment is a multidisciplinary process (National Threat Assessment Center, 2018). School threat assessment teams typically draw staff from administration, teaching, law enforcement, and mental health. Training must engage all personnel from these groups so that they can work together effectively while maintaining awareness of their roles in the threat assessment process (National Threat Assessment Center, 2018).

The second challenge is that many schools rely on disciplinary practices that fail to consider contextual factors surrounding threats. In the 1990s, many schools adopted a zero-tolerance approach in their response to student threats, and the use of these practices increased after the Columbine shooting (Skiba & Knesting, 2001). Zero tolerance relies on the use of exclusionary discipline practices, which are associated with worse academic outcomes and higher rates of school dropout (Maeng, Cornell, & Huang, 2019; Noltemeyer, Ward, & Mcloughlin, 2015).

A third challenge is that staff often overestimate the risk of a school shooting. Critics of threat assessment have raised concern that school authorities might misuse the threat assessment process to unfairly punish or stigmatize students (Swetlitz, 2019). To the contrary, with appropriate training, threat assessment gives school personnel an investigative process that can reduce overreactions to a student's misbehavior (Burnette, Datta, & Cornell, 2018). This process involves considering both contex-

tual factors and developmental differences so that staff can respond appropriately to student threats of violence (Cornell, 2018).

Threat Assessment Training Research

Two prior studies provided limited evidence that day-long workshops for school personnel enhanced knowledge of threat assessment and school safety. The first study examined two threat assessment workshops for 351 multidisciplinary school personnel (Allen, Cornell, Lorek, & Sheras, 2008). The researchers found that school personnel across occupations showed substantial increases in threat assessment knowledge from pretest to posttest as well as a high degree of threat classification accuracy. Although most participants obtained high scores, there were statistically significant differences across occupational groups, with psychologists achieving the highest knowledge scores and law enforcement officers achieving the lowest knowledge scores. Over 90% of participants provided favorable evaluations of the workshop, acknowledging that they found the training helpful, practical, and useful in responding to student threats.

The second study examined the effects of threat assessment training for 142 school personnel across three workshops (Cornell, Gregory, & Fan, 2011). This study also found that participants had increased knowledge of threat assessment and were able to distinguish serious from not-serious threats. A randomized controlled study showed that schools trained in threat assessment had reduced rates of long-term suspensions and increased use of counseling services for students who threatened violence compared with schools without threat assessment training (Cornell et al., 2011).

Although these studies provide promising results, they were limited to five workshops that were all led by the same trainer. It is necessary to examine threat assessment training in a larger and more diverse sample and to investigate whether positive effects generalize across trainers. It is also important to consider a range of participant characteristics, including gender, occupation, years of experience working in schools, and prior training in threat assessment.

Training Environment

Research in professional development often focuses on structuring the content of training to be conducive to learning; however, it is also important to investigate environmental influences. Particularly in a full-day workshop with a large number of participants, there may be differences in learner engagement associated with seating (e.g., those seated in the rear of the room may be less engaged and learn less compared with those seated in the front). There also may be an effect of seat comfort and room temperature on learner engagement.

Multiple educational studies have investigated the relationship between classroom seat arrangement and student learning. They found that students who sat in the front of a classroom achieved better grades and were more motivated, confident, and engaged compared with students who sat in the back of the classroom (Benedict & Hoag, 2004; Burda & Brooks, 1996).

Research in professional development has found that perceptions of seat comfort can influence training effectiveness and employee performance. A study by EL Hajjar and Alkhanaizi (2018) examined environmental effects on employee training outcomes and found that participant ratings of seat comfort were positively associated with training effectiveness. Another study found that workplace comfort influenced employee productivity and satisfaction (Maarleveld & De Been, 2011).

Other studies have investigated the effects of temperature on academic performance and employee productivity. They found that temperatures perceived as either too hot or too cold can have detrimental effects on employee performance and school achievement (Lan, Wargocki, & Lian, 2012; Wargocki & Wyon, 2007). Although these studies suggest that environmental factors can influence academic and work-related performance, it is unclear whether these results apply to the professional development of school personnel.

Current Study

There is relatively little research on threat assessment training and its impact on participants. The present study contributes to this effort by examining the effects of a day-long threat assessment training workshop for school

personnel using the CSTAG. The study used a relatively large sample of 4,666 participants across 100 workshops delivered by nine different trainers between 2016 and 2019. The workshops took place in 28 states and one Canadian province.

The study outcome variables included knowledge of threat assessment, ability to classify threat assessment cases accurately, and participant evaluations of the workshop. The first research question was, "How does the workshop affect school personnel knowledge of threat assessment?" It was hypothesized that school personnel would achieve significant knowledge gains from pretest to posttest after completing the workshop. The second research question was, "How are school personnel characteristics of gender, occupation, work experience, and prior threat assessment training and experience associated with knowledge of threat assessment, threat classification accuracy, and evaluations of the workshop?" It is important to consider whether training results are consistent for participants of diverse occupations and backgrounds. The third research question was, "Are workshop effects comparable across different trainers?" This assessment is needed to show that the positive results of training are not limited to a single trainer and can be obtained by multiple trainers. The fourth research question was, "How do the environmental factors of seat location, seat comfort, and room temperature influence workshop experience?" This question has practical value to school systems as they try to ensure the best possible training experience for their staff members.

Method

Workshop

The day-long training workshops were designed to cover the content of the CSTAG manual (Cornell, 2018). This model was developed at the University of Virginia with the purpose of responding to threats of violence without resorting to exclusionary discipline (Cornell, 2018). This training is primarily focused on students, consistent with a statewide survey finding that the majority (98%) of school threats were made by currently enrolled students (Cornell, 2018). However, threats made by adults are also briefly covered in the workshop and manual. The CSTAG model uses a five-step decision tree that facilitates the consideration of contextual and developmental factors relevant to the student's behavior to help teams avoid both overreacting to student misbehavior that is not serious and underreacting to students who pose a serious threat of violence. This model distinguishes "transient" threats that are not serious from "substantive" threats that are serious and require protective action.

Each workshop was led by either the primary developer of the CSTAG model (Dewey Cornell) or one of eight psychologists who had been trained by the developer. All trainers delivered the same workshop with identical PowerPoint slides and handouts. These workshops were typically arranged by school authorities, such as school districts, intermediate districts, or the state department of education. In accordance with recommendations from professional development literature (e.g., Desimone, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gast, Schildkamp, & van der Veen, 2017), trainers delivered content-focused information to bolster knowledge of threat assessment and school safety. Trainers used a variety of active learning techniques throughout the day, including team exercises using case vignettes, so that participants could practice conducting threat assessments.

Measures

Knowledge. Thirteen pretest/posttest knowledge questions (see Table 1) were chosen based on a content analysis of the CSTAG manual and were intended to reflect some of the key concepts covered in the workshop. Participants responded to statements on threat assessment (e.g., "About two-thirds of threats are transient, and one-third of threats are substantive") or general trends of school violence (e.g., "The probability that a student will be murdered at school is so low that the average school will experience it about once every 6,000 years") with one of three response options (true/agree, false/disagree, or do not know). Response options were then recoded as dichotomous (i.e., 1 = correct, 0 = incorrect/do not know). These 13 items had a Cronbach's alpha of .68 at pretest and .64 at posttest, which was considered adequate as an index that covered a variety of topics (Streiner, 2003).

Table 1
Pretest and Posttest Knowledge of Threat Assessment

Questions	Pretest % correct	Posttest % correct
Violence in schools has increased over the past 10 years. (False)	14	75
A safety plan should be implemented for a transient threat. (False)	13	76
If a student threatens an act of violence, immediate suspension is necessary. (False)	62	89
When interviewing a student about an alleged threat, the student should be reassured that his/her statements are confidential. (False)	60	90
An angry student who says "I could kill him for that" should always be regarded as making a substantive threat. (False)	53	79
Mental health threat assessments are designed to predict violence. (False)	42	81
The probability that a student will be murdered at school is so low that the average school will experience it about once every 6,000 years. (True)	29	91
A student who writes an essay describing a violent event should be given a threat assessment. (False)	26	65
About two-thirds of threats are transient, and one-third of threats are substantive. (True)	43	90
The typical school violence prevention program can reduce fighting by 50%. (True)	45	85
Controlled studies have found that threat assessment reduces school suspensions. (True)	61	95
Zero tolerance is an effective way to maintain school safety. (False)	56	93
Until the law can be changed, federal law (Family Educational Rights and Privacy Act [FERPA]) prevents school officials from notifying parents of the name of the student who has threatened their child. (False)	17	81

Classification. Four posttest questions evaluated threat classification accuracy. Participants were asked to classify four common student threat situations with one of four response options (no threat, transient threat, serious substantive threat, or very serious substantive threat). Response options were recoded as dichotomous (1 = correct, 0 = incorrect).

Evaluations. Five posttest questions (see Table 2) investigated participant evaluations of the workshop. Statements such as, "This training improved my understanding of student violence," had four response options (1 = *strongly disagree*, 2 = *disagree*, 3 = *agree*, 4 = *strongly agree*). These five items had a Cronbach's alpha of .93.

Prior threat assessment experience. Participants indicated their experience working on a threat assessment team (none, <five cases, or five or more cases) and prior training in threat assessment (none, <5 hr, or 5 or more hours). These questions were moderately correlated ($\rho = .48$) and combined into a single item.

Workshop environment. Participants answered three questions regarding the comfort of their seating (very uncomfortable, uncomfortable, neither uncomfortable nor comfortable, comfortable, or very comfortable), seat location

Table 2
Participant Evaluations of the Threat Assessment Workshop

Evaluations	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)
This training improved my understanding of student violence.	1.8	1.5	44.9	51.8
I understand the basic concepts and guidelines for conducting a threat assessment.	1.5	0.2	43.0	55.3
The training contained the right amount of practical information.	1.7	2.8	45.7	49.8
This training will be helpful to me in responding to student threats of violence.	1.6	0.8	41.4	56.2
I am motivated to use principles of threat assessment in my school.	1.5	0.7	40.6	57.2

(front third of room, middle third of room, or back third of room), and room temperature (too hot, too cold, or just right).

Participants

The project was approved by the University of Virginia Institutional Review Board. Participants answered demographic questions at pretest regarding gender, occupation, job experience, and threat assessment experience. The analytic sample consisted of 4,666 school personnel who attended one of 100 training workshops. When asked about gender, 69% of participants identified as female, and 31% identified as male. The disciplinary breakdown was 39% administration, 7% teaching, 5% law enforcement, 35% mental health/counseling, and 15% other (e.g., social worker, nurse, behavioral specialist). On average, participants had worked at their school for 15 years (range: 0–51 years). The majority of participants (62%) had no experience working on a threat assessment team; 21% had worked on fewer than five threat assessment cases, and 17% had worked on five or more threat assessment cases. When asked about threat assessment training, 41% indicated that they had no prior training, 37% had less than 5 hr, and 22% had more than 5 hr of training.

Data Analysis

Participant responses were included in the analyses if they answered at least 11 of the 13 pretest/posttest knowledge questions. Pretest and posttest knowledge variables were created by summing correctly answered items. The questions regarding seat location, seat comfort, and room temperature were added to the survey after 48 of the workshops had been conducted; data were obtained from a subgroup of 1,991 participants.

To investigate the first research question, a repeated-measures analysis of covariance (ANCOVA) examined differences between pretest and posttest knowledge, controlling for participant gender, occupation, work experience, trainer effects, and prior threat assessment experience in the model. The relations between participant characteristics and pretest knowledge were examined through multiple regression. Subsequently, Research Questions 2 and 3 focused on evaluating the relationships of participant and trainer characteristics with posttest knowledge, threat classification accuracy, and workshop evaluations through a series of three-step multiple regressions. In each model, Step 1 controlled for pretest knowledge. Step 2 evaluated and controlled for the nesting of participants within trainers through fixed-effect models with J-1 deviation-coded trainer variables. Step 3 included the substantive participant characteristics of gender, occupation, prior threat assessment experience, and years of work experience. The fourth research question focused on the environmental variables of seat comfort, seat location, and room temperature. These variables were entered at Step 4 in the subsample of 1,991 participants.

Results

Preliminary analysis revealed that individuals achieved an average gain of 5.72 correct answers from pretest (mean [M] = 4.44) to posttest, $M = 10.16$; $F(1, 4{,}333) = 1{,}368.39$, $p < .001$. Descriptive statistics for pretest and posttest knowledge, as well as workshop evaluations, can be found in Tables 1 and 2. The results from the stepwise regression models, described next, are presented in Table 3.

Multiple regression analysis revealed that participant characteristics accounted for 11% of the variability in pretest knowledge scores, $F(7, 4{,}378) = 77.37$, $p < .001$. After controlling for pretest knowledge and trainer effects, participant characteristics accounted for 1% of the variability in posttest knowledge scores $F(7, 4{,}332) = 8.33$, $p < .001$.

Participants with more threat assessment experience answered more questions correctly at pretest than those with less experience ($\beta = 0.29$, $p < .001$). However, these differences were no longer significant at posttest ($\beta = 0.01$, $p = .555$). Male participants answered more questions correctly at pretest in comparison to female participants ($\beta = 0.04$ $p = .015$). At posttest, male participants answered fewer questions correctly in comparison to female participants ($\beta = -0.04$, $p = .005$). There were no significant differences between years of schoolwork experience and scores at pretest ($\beta = -0.02$, $p = .219$) or posttest ($\beta = -0.02$, $p = .148$).

Table 3
Standardized Regression Coefficients for Participant Characteristics

Predictors	Pretest knowledge[a]		Posttest knowledge			TA classification			Workshop evaluations		
	B	R^2	*B*	R^2	ΔR^2	*B*	R^2	ΔR^2	*B*	R^2	ΔR^2
Step 1											
Pretest			0.27***	.07			.02			.00	
Step 2											
Trainers				.11	.03***		.03	.01***		.03	.02***
Step 3											
Prior TA experience	0.29***		0.01			−0.00			−0.02		
Years	−0.02		−0.02			−0.06***			−0.01		
Gender[b]	0.04*		−0.04**			0.01			−0.03*		
Teaching[c]	−0.10***		−0.04**			−0.03			0.03*		
Law enforcement[c]	−0.08***		−0.06***			−0.00			−0.05**		
Mental health/Counseling[c]	0.05**		−0.02			0.02			0.03		
Other[c]	−0.01	.11***	−0.10***	.12	.01***	−0.03	.04	.01***	0.04*	.04	.01***

Note. TA = threat assessment.
[a] All predictors were entered simultaneously at pretest. [b] Female was used as the reference group. [c] Administration was used as the reference group.
* $p < .05$. ** $p < .01$. *** $p < .001$.

All occupational groups achieved between 26% and 36% accuracy at pretest and 74–78% accuracy at posttest. Using administration as the reference group, participants working in teaching achieved lower pretest scores ($\beta = -0.10$, $p < .001$), and these differences remained at posttest ($\beta = -0.04$, $p = .008$). Similarly, individuals working in law enforcement answered fewer questions correctly at pretest than individuals working in administration ($\beta = -0.08$, $p < .001$), and these differences persisted at posttest ($\beta = -0.06$, $p < .001$). Participants working in mental health/counseling scored higher than individuals working in administration at pretest ($\beta = 0.05$, $p = .004$), but these differences were no longer significant at posttest ($\beta = -0.02$, $p = .217$). Although there were no significant differences at pretest, individuals who identified their position as "other" scored significantly lower than individuals in administration at posttest ($\beta = -0.10$, $p < .001$).

The next hierarchical linear regression compared participant characteristics with threat classification accuracy. After controlling for pretest knowledge and trainer effects, participant characteristics accounted for a small but statistically significant amount of variation in classification scores, $F(7, 4{,}279) = 4.151$, $p < .001$, $\Delta R^2 = .01$. Participants with more work experience in their school had lower threat classification accuracy ($\beta = -0.06$, $p < .001$).

The next hierarchical linear regression compared participant characteristics with participants' overall evaluations of the workshop. Participant characteristics accounted for a statistically significant amount of variation in workshop evaluation scores after controlling for pretest knowledge and trainer effects, $F(7, 4{,}220) = 5.55$, $p < .001$, $\Delta R^2 = .01$. There were no significant differences by prior threat assessment experience or years of schoolwork experience. Male participants had slightly lower evaluations of the workshop compared with female participants (97.0% positive vs. 97.3% positive; $\beta = -0.03$, $p = .038$). Participants in law enforcement had slightly lower evaluations of the workshop compared with individuals in administration ($\beta = -0.05$, $p = .003$). Using administration as the reference group, participants provided higher workshop ratings when they worked in teaching ($\beta = 0.03$ $p = .046$).

Analyses of trainer effects revealed statistically significant differences across trainers in posttest knowledge of threat assessment, threat classification accuracy, and workshop evaluations, after controlling for pretest knowledge scores. Participant posttest scores in workshops led by four of the trainers significantly deviated from the grand posttest mean across trainers, and trainers accounted for 3% of the variability in posttest scores, $F(8, 4{,}339) = 19.54$, $p < .001$. Participant evaluation ratings in workshops led by four of the

trainers significantly deviated from the grand evaluation mean across trainers, and trainers accounted for 2% of the variability in workshop evaluation scores, $F(8, 4{,}227) = 13.14$, $p < .001$. Threat classification accuracy scores in workshops led by two of the trainers significantly deviated from the grand classification accuracy mean. Across all trainers, participants achieved averages between 71% and 77% in threat classification accuracy; trainers accounted for 1% of the variability in participant threat classification scores, $F(8, 4{,}286) = 7.72$, $p < .001$.

Secondary analyses on the subsample of 1,991 participants revealed that environmental variables had only a modest association with workshop evaluations. After controlling for pretest knowledge, trainer effects, and participant characteristics, the inclusion of seat location, seat comfort, and room temperature accounted for 1% of the variability in workshop evaluation scores, $F(5, 1{,}872) = 2.90$, $p = .013$. Individuals who perceived their seats as more comfortable provided higher evaluations of the workshop ($\beta = 0.08$, $p = .001$). There were no other significant associations between room temperature, seat comfort, or seat location and posttest knowledge, workshop evaluations, or threat classification accuracy (all ps $> .05$).

Discussion

This study demonstrated the effects of professional development training in threat assessment for a relatively large sample of workshops conducted by nine different trainers. Overall, participants demonstrated substantial gains in knowledge of threat assessment from pretest (34%) to posttest (78%) and demonstrated a high degree of threat classification accuracy (75%) after completing the CSTAG workshop. These results compare favorably to previous studies of professional development training in the criminal justice field; an examination of four different training programs found that participants scored 34% at pretest but only achieved 56% at posttest (Bradley & Connors, 2007).

Consistent with prior research (Allen et al., 2008), there were differences in threat assessment knowledge by occupation. Mental health/counseling staff had the highest levels of threat assessment knowledge at pretest (36%), followed by administrators (34%), other staff (34%), law enforcement officers (27%), and teachers (26%). Because threat assessment is conducted by multidisciplinary teams, it is important that training produces comparable effects across disciplines. Participants in different occupational groups likely have varying strengths and weaknesses in their threat assessment knowledge. For example, law enforcement officers may have a greater knowledge of the legal implications once a threat has been reported, whereas teachers may have a greater understanding of the developmental differences between students that can influence the seriousness of the threat. It is important that workshops effectively transmit knowledge across occupations and levels of experience to bridge gaps in knowledge.

Teachers and law enforcement officers demonstrated the highest knowledge gains from pretest to posttest. This is notable, given that they were the two lowest-scoring occupational groups at pretest. These higher gains enabled them to achieve posttest scores that were comparable to those of the other occupational groups. At pretest, there was a 10% range in knowledge scores across occupational groups; at posttest, this was reduced to a 4% range in knowledge scores. Although these differences were still statistically significant, the knowledge gap decreased from pretest to posttest. More importantly, these differences do not appear to be practically significant. All of these groups showed large gains, generally doubling their scores from pretest to posttest.

There is a high demand for quality threat assessment training that can be implemented on a large scale. Therefore, it is important that training is effective across participant differences. At pretest, men demonstrated slightly higher threat assessment knowledge (36% correct) than women (34% correct), but women had higher gains and moved slightly ahead at posttest (78% correct vs. 77% correct). Overall, these findings show that both men and women had significant knowledge gains after completing the workshop. Individuals who had higher levels of prior threat assessment experience had better pretest scores, but these differences were no longer significant at posttest. This shows that participants, regardless of prior experience, benefitted from completing this workshop. Furthermore, across occupations as well as differences in gender and experience, participants showed gains in threat assessment knowledge that reduced group variation and brought them to a common standard.

Participants across trainers answered between 75% and 81% of questions correctly at posttest, showing that knowledge gains were not specific to a particular trainer. This is a notable finding; states are increasingly adopting threat assessment, and there is a high need for training that can be disseminated on a large scale. Because of the large number of schools that need training, many states—such as Arizona, Florida, Kentucky, New York, Pennsylvania, and Utah—are using train-the-trainer models to disseminate training. Although there were some small differences between trainers, all of the trainers in this study effectively provided education on threat assessment.

A core goal of threat assessment is to distinguish cases in which someone poses a serious threat from cases in which someone makes threats that are not serious. In the CSTAG model, this distinction is captured by the concepts of transient (not serious) and substantive (serious) threats. The ability to distinguish between transient and substantive threats is important to avoid overreacting to student threats and to facilitate interventions. The average threat classification accuracy for participants ranged between 71% and 77% across trainers. This accuracy rate is consistent with prior threat assessment training and coder reliability studies (Allen et al., 2008; Burnette et al., 2018).

Individuals with more schoolwork experience had slightly lower threat classification accuracy than those with less experience. However, it is important to note that they only significantly differed in their responses to one case vignette. This vignette described a child who was yelling obscenities at a teacher. Although the student did not make a threat of violence, individuals with more work experience tended to classify this situation as a threat, whereas those with less experience identified the situation as not being a threat. It is possible that individuals with more work experience may have a slight tendency to judge the student's behavior more seriously than less experienced individuals. It is also possible that this difference reflects a generational difference in reactions to student misbehavior, but the study did not have participant age as a variable to distinguish from years of work experience. There were no differences in threat classification accuracy by gender, occupation, or prior threat assessment experience. Overall, participants were able to achieve a high degree of threat classification accuracy after completing the workshop.

The National Threat Assessment Center (2018) published a series of recommendations on enhancing school safety using threat assessment. They indicate that threat assessment should be a multidisciplinary process and that staff members across occupations should receive training. This study provides a way for schools to attain these recommendations, showing that this day-long workshop is effective in transmitting threat assessment knowledge across multiple disciplines. Further, multidisciplinary school personnel reported that the training was practical and provided useful information in responding to student threats of violence.

Workshop Evaluations

One of the most widely used models for measuring training effectiveness is the Kirkpatrick four-level evaluation model (Kirkpatrick & Kirkpatrick, 2016). The first two steps of this model emphasize the need to gauge participant reactions to training as well as their perceptions of their learning experience. These components are crucial so that the last two steps of the model—behavior and results—can be assessed after the completion of training. If participants are not motivated to use the training principles and do not feel confident in their ability to use the techniques learned in training, it is unlikely they will apply this training in their jobs (Desimone, 2009; Kirkpatrick & Kirkpatrick, 2016).

After completing the workshop, school personnel across trainers had high evaluations of both the training and threat assessment. Over 95% of participants reported that the workshop improved their understanding of student violence and threat assessment and felt that the training contained the right amount of practical information. Approximately 98% of participants endorsed motivation to use threat assessment principles in their school. The findings from this study are consistent with the Allen et al. (2008) study showing that individuals who completed the workshop provided positive workshop evaluations and endorsed motivation to use these principles in school.

Overall, between 96.6% and 97.9% of participants across occupational groups provided positive evaluations of the workshop. Although this

range is small, these differences were statistically significant. Teachers, mental health/counseling staff members, and other staff members gave the highest overall workshop ratings, followed by administrators and law enforcement officers. Law enforcement officers tended to provide the least positive evaluations of the workshop's ability to enhance their knowledge of student violence (95% positive) and the workshop's utility in responding to student threats of violence (96% positive) in comparison to the other occupational groups. Despite these slight differences, it is important to note that nearly all participants across occupational groups provided positive evaluations of the workshop.

Consistent with the Allen et al. (2008) study, school personnel demonstrated a decrease in support for zero-tolerance disciplinary practices after workshop completion. Prior to workshop completion, 45% of participants believed that zero-tolerance disciplinary practices were effective in maintaining school safety; at posttest, this number dropped to 7%. This decrease in support is notable; studies have found that zero-tolerance disciplinary practices are ineffective and can lead to negative outcomes, such as increased rates of suspension (American Psychological Association Zero Tolerance Task Force, 2008). This supports the findings by Maeng et al. (2019) that schools using CSTAG have lower rates of suspension and expulsion compared with schools using an alternative model of threat assessment. Further, Heilbrun, Cornell, and Lovegrove (2015) found that principal endorsement of zero-tolerance disciplinary practices was associated with increased rates of suspension and exclusionary discipline. In contrast to zero tolerance, studies have shown that schools demonstrate decreases in suspension rates after implementing threat assessment (Cornell et al., 2011; Nekvasil & Cornell, 2015). This change in attitudes, coupled with the motivation to use principles of threat assessment in school, reflects a shift away from punitive disciplinary practices and toward the use of a problem-solving approach to violence prevention.

Environment

Environmental characteristics had only a minor effect on evaluations of the training. Seat comfort was positively associated with ratings of the workshop. This is consistent with prior studies finding that environmental characteristics, such as seat comfort, can have an impact on workshop experience (EL Hajjar & Alkhanaizi, 2018; Maarleveld & De Been, 2011).

In contrast with prior research (e.g., Benedict & Hoag, 2004; Lan et al., 2012; Wargocki & Wyon, 2007), we did not find that seat location or room temperature was significantly associated with workshop experience. On average, each workshop had 47 participants; there might be effects of seat location in larger groups. A future study should investigate whether there is an interaction effect between group size and seat location, seat comfort, and/or room temperature.

Limitations and Future Directions

A limitation of this study is that this assessment of learning was limited in scope and timeframe. The scope of knowledge was measured at the end of the day with 13 pretest/posttest items and 4 posttest-only items. A more extensive study would include many more items and test participant knowledge after a longer interval of time. The content of the pretest/posttest survey was not as comprehensive as the certified threat manager examination developed by the Association of Threat Assessment Professionals (n.d.; see Scalora, 2015).

Another limitation is that this study examined only one threat assessment model, the CSTAG, and used a group of nine experienced trainers. It would be important to show that training in other models can produce similar effects and that less experienced trainers, such as those recently completing a train-the-trainer program, can achieve comparable results. This study only considered in-person group training in which a single trainer presented to groups of school teams. The trainer was able to interact with the group and respond to questions, and the participants were able to work together as teams on practice exercises. In light of public health restrictions on group meetings, it is important to examine whether live or recorded online training would produce similar results.

Finally, there is a need to show that the positive effects obtained at the end of the workshop carry forward to school practices (Kirkpatrick & Kirkpatrick, 2016). A study of the German NETWASS threat assessment model found that training produced staff adherence to a case management protocol 7 months after training (Le-

uschner et al., 2017). Further work is also needed to show how much and what kind of training is needed to prepare team members to conduct threat assessments with high fidelity and positive student outcomes.

Conclusions

The Federal Bureau of Investigation, Secret Service, and Department of Homeland Security recommended training for school personnel conducting threat assessments to facilitate effective implementation (National Threat Assessment Center, 2018; O'Toole, 2000). Yet, there has been relatively little research on standards of training and evidence of training effectiveness. It is important that threat assessment training is useful for multidisciplinary staff members, can be implemented effectively across trainers, and includes methods to evaluate both participants' learning and their reactions to the training (Kirkpatrick & Kirkpatrick, 2016; National Threat Assessment Center, 2018). As threat assessment becomes more widespread, standards of training need to be established to provide schools with high-quality training that can be disseminated to multidisciplinary school personnel. Training should enable the threat assessment team to make high-quality assessments and develop effective interventions to maintain school safety and facilitate positive outcomes for students.

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Received February 19, 2020
Revision received May 6, 2020
Accepted June 17, 2020 ■

Journal of Threat Assessment and Management

2169-4842/17/$12.00 http://dx.doi.org/10.1037/tam0000092

The Distinction Between Transient and Substantive Student Threats

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Many schools across North America have adopted student threat assessment as a violence prevention strategy. The Virginia Student Threat Assessment Guidelines (VSTAG) is a threat assessment model that emphasizes distinguishing between substantive threats that are serious and transient threats that are not serious. This retrospective study investigated the interrater reliability and criterion-related validity of this distinction in a sample of 844 student threat cases from 339 Virginia public schools. To assess interreliability for the transient versus substantive distinction, research coders independently classified a subsample of 148 narratives, achieving classification agreement with schools of 70% ($\kappa = .53$). Logistic regression analyses examined transient and substantive threat differences in threat characteristics and outcomes. Threats were more likely to be classified as substantive when they included warning behaviors (e.g., history of violence, weapon use, leakage, etc.), were made by older students, mentioned the use of a bomb or a knife, and involved threats to harm self as well as others. Although only 2.5% of threats were attempted, substantive threats were 36 times more likely to be attempted than transient threats. Substantive threats were more likely to result in out-of-school suspension, change in school placement, and/or legal action. Overall, these findings supported the transient/substantive distinction, but indicated some training needs for school teams.

Keywords: threat assessment, transient and substantive distinction, school safety

In response to highly publicized and harrowing school shootings, U.S. government authorities in law enforcement and education recommended the implementation of threat assessment in schools to improve school safety (American Psychological Association, 2013; Fein et al., 2002; National Association of School Psychologists School Safety and Crisis Response Committee, 2014; O'Toole, 2000). Despite this widespread support, there is a dearth of research on the threat classification process.

Threat assessment is a systematic approach to violence prevention intended to distinguish serious threats, defined as behaviors or communications in which a person poses a threat of violence, from cases in which the threat is not serious (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) and then to take appropriate prevention steps. Given that threats arise in different contexts and circumstances, they require different management strategies.

How do schools differentiate serious from nonserious threats of violence? This distinction is a critical issue in threat assessment (Cornell & Sheras, 2006; Fein et al., 2002; O'Toole, 2000). One way to address this matter is to evaluate how threat assessment teams classify and manage serious and nonserious threats. Although all threats should be taken seriously for safety purposes (O'Toole, 2000), we use "serious" in this study to mean a threat that has been determined to pose a nontrivial risk of violence because an individual has both the means and intent to carry out the threat. The purpose of this

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We thank members of the project research team including Francis Huang, Yuane Jia, Tim Konold, Jennifer Maeng, Marisa Malone, Patrick Meyer, Kathan Shukla, and Shelby Stohlman. This research was supported by Grant NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the Department of Justice. Dewey Cornell is the principal developer of the Virginia Student Threat Assessment Guidelines and lead author of *Guidelines for Responding to Student Threats of Violence*.

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study is to examine the Virginia Student Threat Assessment Guidelines (VSTAG) use of the transient-substantive classification to distinguish threats that are serious from those that are not serious.

Prevalence of Threats and Violence in Schools

Student threats of violence are relatively common in schools (Nekvasil & Cornell, 2012). Nekvasil and Cornell (2012) surveyed 3,756 high school students and asked whether another student had threatened to harm them in the past 30 days. Approximately 12% of students reported being threatened. However, 23% of the 451 threatened students regarded the threat as serious, implying that more than three fourths of students thought the threat would not be carried out. In contrast, approximately 9% reported that the threat was carried out. This rate of aggression might seem high in an adult workplace setting, but as summarized below, school surveys find that aggressive behavior is relatively common in an adolescent school setting.

Although student threats usually are not carried out, previous research found a correlation between threats of violence and violent behavior (Nekvasil & Cornell, 2012; Singer & Flannery, 2000; Warren, Mullen, Thomas, Ogloff, & Burgess, 2008). Singer and Flannery (2000) investigated the relationship between students' threats of violence to others and self-reported violent behaviors, and concluded that student threats should not be ignored. Compared to students who did not make a threat to harm others, students who frequently threatened violence were 14 to 23 times more likely to report attacking someone with a knife and 17 times more likely to report shooting at someone. Even students who reported threatening others infrequently were more likely to exhibit violent behaviors when compared to nonthreateners.

The 2015 Youth Risk Behavior Surveillance Survey found that approximately 7.8% of high school students nationwide reported being in a physical fight on school property and 6% had been threatened or injured with a weapon (i.e., gun, knife, or club) on school property (Kann et al., 2016). Within the month preceding the survey, 4.1% of students reported carrying a weapon to school on at least one day.

Although physical altercations and possession of weapons are observed in many schools, lethal acts of violence are rare. The Centers for Disease Control and Prevention reported that 462 violent youth deaths occurred at schools between 1992 and 2012 (Robers, Zhang, Morgan, & Musu-Gillette, 2015). This translates to an average of 23.1 deaths per year and a rate of approximately 0.86 deaths per 100,000 among school-age youth. While this is not a precise calculation, it demonstrates that the risk of homicidal school violence is relatively low. Another study using data from the National Incident-Based Reporting System (Nekvasil, Cornell, & Huang, 2015) similarly found that homicides rarely occurred in schools (0.3% of all homicides) compared to other locations. This perspective is important because the belief that homicidal violence is a likely event can skew the perception of risk in evaluating a potentially dangerous student.

Distinguishing Serious and Nonserious Threats of Violence

Given that threats are commonplace but typically not carried out (Nekvasil & Cornell, 2012), how do school threat assessment teams determine which threats of violence are more likely to result in an attack? Threat assessment authorities have posited that there may be "warning behaviors" or behavioral patterns that indicate a person has serious intent to carry out a threat (Meloy, Hoffmann, Guldimann, & James, 2012). Researchers examining incidents of targeted violence within schools as well as in other settings found that most attackers had access to weapons prior to the violent incident and also exhibited leakage, suicidal ideation, and obsession with violence (Hoffmann & Roshdi, 2013; Mohandie, 2014; O'Toole, 2000; Vossekuil et al., 2002). Attackers also tended to demonstrate more warning behaviors as they moved along a pathway to violence (Meloy et al., 2012).

Meloy and O'Toole (2011) defined *leakage* as "the communication to a third party of an intent to do harm to a target" (p. 514). Leakage can occur through oral, written, or social media communications (Meloy & O'Toole, 2011; O'Toole, 2000). Students might intentionally confide in a peer or communicate their violent plans through their journals or social media

pages. In their study of school violence, the U.S. Secret Service and U.S. Department of Education noted that in 81% of the 37 violent incidents reviewed between 1974 and 2000, at least one individual knew the attacker was considering an act of violence before it transpired (Vossekuil et al., 2002). These individuals were most often (93%) friends, classmates, or siblings; only rarely (17%) did the attackers threaten their intended targets directly. Although direct threats to the intended victims are rare, both leakage and direct threats are warning behaviors that can signify that an attacker is moving along a pathway of violence (Hoffmann & Roshdi, 2013; Meloy, Hoffmann, Roshdi, Glaz-Ocik, & Guldimann, 2014). Research in German schools also found that warning behaviors, such as a preoccupation with violent media, acquisition of weapons, and suicide ideation, signal an attacker's escalation along a pathway of violence (Hoffmann & Roshdi, 2013). A German model of threat assessment places primary emphasis on identifying students experiencing a psychosocial crisis that could precipitate violence (Leuschner, Fiedler, Schultze, et al., 2017). This model trains teachers to recognize and report warning signs of violence in their students.

Researchers also found that almost all the attackers (93%) engaged in behaviors that concerned others prior to the incident (Vossekuil et al., 2002). The concerning behaviors of the attackers included the use of weapons (63%), fascination with violence displayed through class assignments or verbal communications (59%), and suicidal ideation (78%). The majority of the attackers had access to weapons prior to the incident (68%) and had a known history of weapon use (63%). Lastly, the investigators found that some attackers had committed a known act of violence prior to the incident (31%) and/or had previously been arrested (27%). Although these concerning behaviors apply to only a subset of the attackers included in the study, many researchers have concluded that a history of violence is the strongest predictor of future violence (Monahan & Steadman, 1994). Overall, the threat assessment literature suggests that warning behaviors raise concern that a threat is serious (Meloy et al., 2012; O'Toole, 2000; Vossekuil et al., 2002).

Distinguishing Threat Assessment From Risk Assessment

Threat assessment has emerged as a specialized form of violence risk assessment that has some important distinguishing features (Cornell & Datta, 2017; Meloy, Hart, & Hoffmann, 2014). A threat assessment is typically conducted to determine whether a person intends to carry out a specific threatened act, usually toward a targeted victim or group, within a relatively short timeframe. In contrast, a violence risk assessment is conducted to determine an individual's potential to perpetrate a violent act during an unspecified, open-ended time period, typically to help decide whether to release an individual from incarceration (Otto & Douglas, 2011) or a mental health facility (Monahan, 2010). Meloy, Hart, and Hoffmann (2014, p. 6) contend that the differences between threat assessment and violence risk assessment are substantial, but "primarily a matter of degree rather than kind." These differences include that threat assessment places more emphasis on dynamic as opposed to static risk factors, makes judgments using idiographic or case-specific factors rather than nomothetic or data-driven rules, and is concerned with risk management instead of prediction of violence.

An increasingly recognized approach to violence risk assessment is structured professional judgment (Nicholls, Petersen, & Pritchard, 2016), which combines elements of clinical judgment and actuarial assessment (Douglas & Kropp, 2002). The structured professional judgment approach uses a decision theory framework to examine an individual's history of violence and relevant risk factors to make inferences about his or her potential for future violence, and to develop appropriate case management strategies (Hart & Logan, 2011). An early work on school threat assessment (Reddy et al., 2001; using the terms *guided professional judgment* and *structured clinical assessment*) cautioned that structured professional judgment is not readily applied in cases where the task is to assess an individual's risk for targeted school violence. The researchers noted that the base rate is very low and there is little empirical research on the risk factors for targeted school violence. They pointed to the behavioral and psychological heterogeneity of school shooters and their diverse motives and circumstances.

They distinguished threat assessment from guided professional judgment by the former's emphasis on a deductive approach to gathering facts about the particular case in question and the need for threat assessment teams to take active steps to manage individuals to reduce risk to the identified target.

Although Reddy and colleagues' analysis identifies key strengths of the threat assessment approach, we respectfully suggest that threat assessment can be conceptualized as involving a form of structured professional judgment. A threat assessment model can be structured to gather information and make decisions in a structured and systematic way, and with sufficient research, it can be guided by a foundation of knowledge and empirical support. Structured professional judgment fundamentally refers to the way in which risk assessment and management decisions are guided by evidence derived from relevant empirical research, and integrated with observations of individual case characteristics and circumstances. There is no reason why threat assessment cannot be tested, evaluated, and improved with empirical research so that it becomes an evidence-based application of structured professional judgment. The current study is intended as a contribution to that goal.

Virginia Student Threat Assessment Guidelines

One model for managing threats in school is the Virginia Student Threat Assessment Guidelines (VSTAG) (Cornell & Sheras, 2006) developed at the University of Virginia. This model integrated recommendations from Federal Bureau of Investigation and Secret Service studies of school shootings (Fein et al., 2002; O'Toole, 2000) with practical advice and field-tested experiences derived from work with a group of Virginia public schools (Cornell & Sheras, 2006). Notably, the VSTAG model provides teams with guidelines to distinguish whether a threat is transient (not serious) or substantive (poses a continuing risk to others). The VSTAG recognizes that all threats should be evaluated, but that, especially in a school setting, threat assessment teams are challenged to avoid overreacting to threats that are not serious and focus their attention on serious threats that merit protective action. The transient/substantive distinction is designed to help school threat assessment teams make a structured professional judgment to meet this challenge. The transient/substantive distinction requires professional judgment by the school team based on an assessment of all available information about the student and the circumstances of the threat; therefore, it is crucial to assess the reliability and validity of the transient/substantive distinction.

A transient threat is an intentionally broad category intended to encompass all forms of threats that do not reflect a genuine intent to harm others (Cornell & Sheras, 2006). The majority of student threats are transient, and can stem from motives including humor, anger, frustration, or fear (Cornell et al., 2004; Nekvasil & Cornell, 2012). Transient threats include a variety of qualitatively different threats that nevertheless are not serious. Examples of transient threats include a student exclaiming, "I'm gonna kill you" as a joke or as a competitive statement during a game, or a student playfully using his or her fingers to shoot another classmate. Other transient threats are made as an expression of anger that nevertheless do not reflect a serious intent to harm someone, such as a student stating rhetorically, "I'd like to kill that jerk" in anger but not actually possessing an intent or plan to kill anyone (Cornell & Sheras, 2006). Transient threats can differ widely in motive and context, and can be provocative and disruptive; but from the practical perspective of threat assessment, they all represent behaviors that do not reflect a real intent to harm others. The transient/substantive distinction is not based solely on a linguistic analysis of the content of the student's statements, but includes information gathered from other sources. In addition, the team considers the student's response to the assessment and whether he or she is able to explain his or her behavior, retract or clarify the threatening statement, and demonstrate a willingness to rectify the situation, if appropriate. This process is described in the VSTAG manual (Cornell & Sheras, 2006).

If a threat is not deemed transient, then school teams follow the decision tree to classify the threat as substantive. Substantive threats are behaviors or statements that represent a serious risk of harm to others (Cornell & Sheras, 2006). According to the VSTAG model, substantive threats are characterized by qualities that reflect serious intent, such as planning and preparation,

recruitment of accomplices, and acquisition of a weapon. Examples of likely substantive threats include a student threatening "I'll get you next time" after a fight and refusing mediation for the dispute, or a student who threatens to stab a classmate and is found to have a knife in her backpack.

The distinction between transient and substantive threats is critical to determining appropriate responses and management strategies. The VSTAG model guides school teams in resolving and responding to student threats according to a seven-step decision tree (Cornell & Sheras, 2006). First, school teams evaluate the threat by interviewing witnesses, using the semistructured interview questions outlined in the VSTAG manual. These questions are simple, open-ended inquiries designed to gather specific information on the student's statements, behaviors, and intentions (e.g., "What happened today when you were at [place of incident]? What exactly did you say? And what exactly did you do? What did you mean when you said or did that?"). Parallel interviews are conducted with the threatened individual, witnesses and other sources of relevant information. Consistent with threat assessment principles, there is an emphasis on gathering factual information from multiple sources and considering contextual and situational factors to determine whether the individual is on a path toward violent action (Reddy et al., 2001). Transient threats are generally resolved with an explanation or apology, and do not require protective action or security efforts. If a school team is unable to resolve the threat or they are unsure about the threat's status, then the decision tree directs them to respond to the threat as a substantive threat.

All substantive threat responses require protective action, which varies depending on the circumstances of the threat and how the threat might be carried out. At a minimum, protective action typically involves notifying the intended victim and his or her parents, as well as contacting the parents of the student who made the threat. Protective action could also involve increased monitoring or supervision of the threatening student. Depending on the nature and credibility of the threat, substantive threats are further classified as either "serious substantive" or "very serious substantive" threats. Threats involving a simple assault are classified as "serious substantive," whereas a "very serious substantive" threat typically involves a threat to kill or a threat to use a lethal weapon or inflict severe injury on someone. The final steps for very serious substantive threats include mental health treatment and disciplinary action, but fewer than 10% of threats merit these actions (Cornell & Sheras, 2006). For example, the school team could remedy the underlying conflict that led to the threat by referring the student for a mental health evaluation and treatment. Threats that are very serious might also require exclusionary disciplinary and law enforcement action to protect the intended targets and reduce the likelihood that the threat will be carried out. The need for such actions is uncommon, but could include suspension from school or a change in school placement. In some of the most serious cases, legal actions such as arrest, court charges, or confinement in juvenile detention center can be warranted.

Evidence for the VSTAG Model

Although the transient-substantive distinction is an important step in the VSTAG model, there is relatively little research on its reliability and validity. The first published study of VSTAG reported the classification of transient and substantive threats in 188 cases collected from 35 schools (Cornell et al., 2004). The majority of cases (70%) were classified as transient and the remaining cases were deemed substantive. Researchers found that the proportion of substantive threats was much higher among middle (41%) and high school students (44%) compared to elementary students (15%). There were no differences in violent outcomes between transient and substantive threats because none of the threats were carried out.

Consistent with the VSTAG training model, school teams responded differently to transient versus substantive threats. Transient threats resulted in more in-school detentions and timeouts (17%) when compared to substantive threats (5%; Cornell et al., 2004). The majority of substantive threats resulted in out-of-school suspensions (80%) compared to transient threats (37%). Three substantive cases resulted in expulsions.

Additional studies found that school personnel trained in the VSTAG model demonstrated a decreased belief that school violence is commonplace, decreased support for a zero tolerance ap-

proach to school discipline, and a decreased propensity to use suspension as a response to student threats (Allen, Cornell, Lorek, & Sheras, 2008; Cornell, Allen, & Fan, 2012). These results were found across school locations (e.g., rural vs. urban) and across school personnel (i.e., school administrators, mental health professionals, and school resource officers).

Three quasi-experimental studies demonstrated a reduction in disciplinary actions and a more supportive school climate in schools using VSTAG. The first study compared 95 high schools using VSTAG to 131 schools using either locally developed threat assessment procedures or 54 using no threat assessment approach (Cornell, Sheras, Gregory, & Fan, 2009). Students in VSTAG model schools reported less bullying in the past month and greater willingness to seek help for bullying and threats of violence. Schools using the VSTAG model had fewer long-term suspensions than the other schools.

The second study trained 23 high schools to implement the VSTAG model, in contrast to a control sample of 26 high schools that continued to use their existing approach to student threats (Cornell, Gregory, & Fan, 2011). Noteably, schools trained in the VSTAG model had a 52% decline in long-term suspensions. Schools using the VSTAG model also demonstrated a 79% reduction in bullying infractions, indicative of a more positive school environment. Additionally, school personnel trained in the VSTAG model demonstrated substantially increased knowledge and understanding of threat assessment principles.

The third study compared 166 middle schools using the VSTAG model to 47 middle schools using either an alternative model or 119 middle schools using no threat assessment approach (Nekvasil & Cornell, 2015). Researchers found that the number of years a school used the VSTAG model was associated with lower long-term suspension rates, lower levels of general victimization, higher student reports of fairer discipline, and higher teacher perceptions of school safety. These results suggest that schools trained in the VSTAG model addressed student conflicts before they escalated into more serious acts of aggression.

In addition to the quasi-experimental studies, a randomized control trial examined 201 student threats in 40 schools (Cornell et al., 2012). The schools were randomly assigned to use the VSTAG model or to use their existing disciplinary approach without threat assessment. After one year, students in schools assigned to the VSTAG model intervention group were significantly more likely to receive counseling services or a parent conference compared to students in the control group schools. Students in the control group were more likely to receive long-term suspensions or an alternative placement compared to students whose behavior underwent a threat assessment. These results indicate that the VSTAG model guides school authorities to avoid a punitive approach in response to student threats of violence, especially in response to threats that are deemed transient because they lack credible evidence such as warning behaviors. Overall, studies evaluating the VSTAG model found substantial evidence that school adoption of a threat assessment approach can change attitudes of school personnel regarding violence prevention efforts and discipline, promote a more positive school climate, and result in less punitive disciplinary responses for students making threats of violence.

Current Study

In 2013, Virginia became the first state to mandate that all public schools establish threat assessment teams to evaluate "individuals whose behavior may pose a threat to the safety of school staff or students" (*Code of Virginia,* §22.1–79.4; Threat Assessment Teams and Oversight Committees, 2013). Each threat assessment team must include individuals with expertise in law enforcement, counseling, instruction, and school administration. Schools may use any model of threat assessment that is consistent with the state's basic model policies for threat assessment (Virginia Department of Criminal Justice Services, 2016).

Virginia also required its public schools to report information regarding their 2014–15 threat assessment cases through an annual School Safety Survey. As a result, it was possible to identify schools using the VSTAG model and examine threat characteristics and outcomes associated with transient versus substantive threats.

The current study examined the interrater reliability and criterion validity of the classification of transient and substantive threats by

school teams. To assess interrater reliability, school team classifications were compared to classifications made by research coders. The first research question was, "Is there agreement between research coders and school threat assessment teams in the classification of threats?" It was hypothesized that there would be high agreement between research coders and school teams in their threat classifications.

The second research question was, "How do transient and substantive threats differ in case characteristics and threat outcomes?" Consistent with the VSTAG model, it was hypothesized that school teams would classify a threat as substantive if the student was in middle or high school rather than elementary school, and if it involved possession of a weapon and a higher number of warning behaviors. Because substantive threats are judged to pose a more serious risk of violence, it was hypothesized that school teams were more likely to suspend the student or change his or her placement, and that the students making substantive threats were more likely to be arrested or charged with an offense. Therefore, it was hypothesized that students who made substantive threats were more likely to attempt to carry them out. Support for these hypotheses would provide new evidence for the reliability and validity of the transient/substantive distinction that is foundational to the VSTAG model of threat assessment.

Method

Participants

The sample consisted of 844 threat cases reported by 339 schools including 173 (51%) elementary, 85 (25%) middle, and 81 (24%) high schools. The racial/ethnic breakdown was 453 (54%) White, 225 (27%) Black, 73 (9%) Hispanic, and 94 (11%) other[1] (see Table 1). Students were approximately 75% male and ranged from prekindergarten to the 12th grade. The mean grade was sixth (typically age 11) and the modal grade was fourth (typically age 9).

A subgroup of cases had a written narrative describing 148 threats obtained from 69 (47%) elementary, 44 (30%) middle, and 35 (24%) high schools. The racial/ethnic breakdown of the most serious cases was 86 (55%) White, 42 (27%) Black, 13 (8%) Hispanic, and 15 (10%) other. The majority of the students were male (76%). Students ranged in grade from kindergarten to 12th grade (mean ~sixth grade, mode fifth grade).

Procedure

Data were obtained from the 2015 School Safety Audit Survey, the online annual survey of schools conducted by the Virginia Department of Criminal Justice Services. The survey is mandated by state law and had 100% participation by Virginia public schools. Of Virginia's 1,746 public elementary, middle, and high schools, 785 schools reported at least one threat assessment case during the 2014–2015 school year. Among these 785 schools, 339 schools used the VSTAG model to classify their threat cases.

Full primary sample of threat cases. The state survey asked schools to provide specific case details for a maximum of five student threat assessment cases. The majority of schools (82%) had five or fewer cases, and thus could report all of their cases. The maximum was set at five to reduce the reporting burden on schools that had a large number of cases. To obtain a range of cases and avoid schools skewing the sample toward their most serious or their least serious cases, the state survey asked schools with more than five cases to report their most serious case, least serious case, and three most recent cases. The term "most serious" was left for the schools to define and had no fixed criterion because it would depend on the number and kinds of threats in each school. The designation of "serious" on the state survey should not be confused with the distinction between serious and nonserious cases used for research purposes in this study. To protect student identities, no names or other identifying information were collected.

Most serious threat narratives. In the narrative description of the most serious cases, schools were requested to include a description of the threat, who was threatened, the circumstances in which it occurred, reasons why the threat was considered serious, and the actions taken by the threat assessment team. Of the 339 schools using the VSTAG model, 148 schools

[1] The *other race/ethnicity* category included students noted as Asian, mixed race, or unknown.

Table 1
Student Demographics for Transient and Substantive Threats

Student	Transient threats, $n = 655$ (77.6%)	Substantive threats, $n = 189$ (22.4%)	Total sample, $N = 844$ (100%)
Sex			
Male	492 (75.1%)	139 (73.5%)	631 (74.8%)
Female	128 (19.5%)	46 (24.3%)	174 (20.6%)
Unknown	35 (5.3%)	4 (2.1%)	39 (4.6%)
Receiving special education prior to threat			
Yes	217 (33.1%)	74 (39.2%)	291 (34.5%)
No	419 (64.0%)	111 (58.7%)	530 (62.8%)
Unknown	19 (2.9%)	4 (.4%)	23 (2.7%)
Grade			
Prekindergarten	6 (.9%)	0 (.0%)	6 (.7%)
Kindergarten	24 (3.7%)	2 (1.1%)	26 (3.1%)
1st Grade	33 (5.0%)	4 (2.1%)	37 (4.4%)
2nd Grade	62 (9.5%)	8 (4.2%)	70 (8.3%)
3rd Grade	60 (9.2%)	7 (3.7%)	67 (7.9%)
4th Grade	88 (13.4%)	18 (9.5%)	106 (12.6%)
5th Grade	63 (9.6%)	19 (10.1%)	82 (9.7%)
6th Grade	63 (9.6%)	15 (7.9%)	78 (9.2%)
7th Grade	67 (10.2%)	26 (13.8%)	93 (11.0%)
8th Grade	61 (9.3%)	18 (9.5%)	79 (9.4%)
9th Grade	52 (7.9%)	29 (15.3%)	81 (9.6%)
10th Grade	34 (5.2%)	20 (10.6%)	54 (6.4%)
11th Grade	24 (3.7%)	12 (6.3%)	36 (4.3%)
12th Grade	15 (2.3%)	11 (5.8%)	26 (3.1%)
Unknown	3 (.5%)	0 (.0%)	3 (.4%)
Race/ Ethnicity			
Hispanic or Latino	59 (9.0%)	14 (7.4%)	73 (8.6%)
White	349 (53.3%)	104 (55.0%)	453 (53.7%)
African American	169 (25.8%)	56 (29.6%)	225 (26.7%)
Other[a]	79 (12.1%)	15 (7.9%)	94 (11.1%)

[a] Other includes Asian, mixed race, and unknown.

submitted a case narrative for their "most serious" cases.[2] These narratives provided a convenient subsample for closer examination of the transient/substantive distinction, but are not presented as representative of the primary sample.

Coding procedure for threat narratives. Two coders independently examined student characteristics, threat characteristics, and case narratives provided by each school. The researchers removed information from the narratives that revealed the outcome of the threat or responses taken by the threat assessment teams so that it would not influence coding. Prior to examining the 148 narratives in the current study, researchers trained by practice-coding a separate sample of 40 cases. After training, the coders achieved 84% agreement for identifying the presence of warning behaviors and 80% agreement for classifying the threat as transient or substantive.

Measures

Threat characteristics. Critical threat characteristics were identified from a checklist of items, including whether the threat involved homicide, harm to self and others, battery without a weapon, a bomb, or an unspecified kind of threat. Teams reported whether the threat was communicated directly (to the intended target), indirectly (to a third party), or implicitly (implied by behaviors and actions of concern). Teams were asked whether the student threat-

[2] Because of the overall length of the safety audit survey, the state agency collecting the surveys decided not to follow up with schools that did not submit a case narrative. Among reasons given by school authorities for nonsubmission were that the question was deemed to be too burdensome or that they did not consider any of their cases serious enough to merit a narrative.

ened to use a weapon or had possession of a weapon. If so, then the type of weapon was identified. Types of weapons included firearms, knives, other edged weapons (i.e., scissors, razor blades), blunt objects (i.e., clubs, bats, furniture), or other (i.e., writing utensils, faux guns).

Warning behaviors. Warning behaviors were operationally defined as behavioral markers that indicate a student's increased risk of violence according to research on dynamic risk factors. Consistent with previous research, seven types of warning behaviors were assessed in this study: (a) a history of violence, (b) leakage of violent intentions, (c) involvement of a weapon, (d) preoccupation with violence or the target prior to the threat, (e) recruiting others to participate in the threatened act of violence, (f) preparing for an attack, and (g) other disturbing behaviors (Hoffmann & Roshdi, 2013; Meloy et al., 2012; Monahan & Steadman, 1994; O'Toole, 2000; Singer & Flannery, 2000; Vossekuil et al., 2002). All warning behavior variables were coded 0 to 1 except for involvement of a weapon. Possession of a weapon was considered more dangerous than mentioning a weapon, therefore no weapon was coded 0, mention of a weapon was coded 1, and a weapon mentioned and present at school was coded 2. Preparing for an attack involved students completing a dry run by carrying a weapon to school to test the boundaries for disciplinary action or response time of the school administration. Other disturbing behaviors included suicide ideation, auditory/visual hallucinations, or detailed writings related to the threatened attack. The warning behaviors were summed to create a total composite score. Warning behaviors were coded from the narratives and, thus, these analyses were limited to the subgroup of 148 cases.

Threat outcomes. Four kinds of threat outcomes were measured: whether the student (a) attempted to carry out the threat, (b) received disciplinary action, (c) had a placement change, and/or (d) was subjected to legal action. Each threat outcome was coded 1 for yes or 0 for no.

Disciplinary actions included out-of-school suspensions of any duration from 1 to 365 days (although 95% were 1–10 days). Placement changes included transfer to another regular school or an alternative school, homebound instruction, or hospitalization. Legal action involved arrests, court charges, and placements in juvenile detention.

Analytic Strategy

To assess the first research question concerning the interreliability of the transient/substantive distinction, threat classifications for the subsample of 148 case narratives were coded. Cohen's kappa values were used to measure the agreement between school team and the research coder classifications.

The second research question was investigated with six logistic regression analyses that examined the distinction between transient and substantive classifications in threat characteristics, warning behaviors, and four threat outcomes. The first model investigated the association of threat characteristics with a substantive versus transient classification in the primary sample of 844 cases. The second regression model was limited to the subsample of 148 cases with coded warning behaviors. Four additional models investigated the likelihood of classifications resulting in threat outcomes (i.e., threat attempted, suspension, change in placement, legal action) in the primary sample. Results are presented as the commonly used odds ratios (*OR*s), where $OR > 1$ signifies a higher likelihood of a substantive classification or a certain outcome and $OR < 1$ indicates a lower likelihood. All analyses controlled for student demographic variables that included gender, grade level, and race/ethnicity (i.e., White, Black, Hispanic, and other).

Results

Of the 844 cases, schools classified approximately 22% (189 cases) as substantive and 78% (655 cases) as transient threats (see Table 1). Among the subsample of 148 cases with narratives, approximately 60% (89 cases) were classified as substantive and 40% (59 cases) as transient.

For the first research question, the comparison of the school team and research coder classifications of the 148 case narratives resulted in 70% agreement ($\kappa = .53$, $p < .001$; Table 2). When examining the 32 classification discrepancies, almost all (28 of 32, 88%) of these cases were classified as substantive by the schools and transient by the coders.

Table 2
Classification Discrepancies

School classification	Coder classification		Total
	Transient	Substantive	
Transient	55	4	59
Substantive	28	61	89
Total	83	65	148

Validity of the Transient/Substantive Distinction

The first logistic regression (see Table 3) found that substantive threats were distinguished from transient threats by higher student grade level ($OR = 1.2$, $p < .001$), expression of homicidal intent ($OR = 2.0$, $p < .05$), harm to self and others ($OR = 10.0$, $p < .001$), battery without a weapon ($OR = 2.8$, $p < .001$), and bomb threat ($OR = 6.9$, $p < .001$). Substantive threats were also distinguished from transient threats by the mention or possession of a knife or sharp-edged weapon ($OR = 6.6$, $p < .001$). Of the 87 cases that referenced a knife or sharp-edged weapon, in 30 cases (35%) the student was reported have a weapon in his or her student possession or on school property. Of the 54 cases that involved a firearm, in two cases (4%) a firearm was reported to be in the student's possession or on school property. The second logistic regression (see Table 4), limited to the 148 cases with narratives, found that substantive threats were distinguished from transient threats by higher student grade level ($OR = 1.2$, $p < .001$) and a higher number of warning behaviors ($OR = 2.1$, $p < .001$).

Threat outcomes. All four analyses concerned with threat outcomes were statistically significant (see Table 5). A substantive threat classification was associated with an attempted threat ($OR = 36.3$, $p < .001$), an out-of-school suspension ($OR = 4.8$, $p < .001$), a change of school placement ($OR = 9.7$, $p < .001$), and legal action, ($OR = 15.0$, $p < .001$). Of the 334 cases resulting in student suspension, 201 cases were classified as transient and 133 cases were deemed substantive. In 21 cases, the student attempted to carry out the threat.

One unanticipated finding was that threats made by Hispanic students were associated with legal action ($OR = 5.3$, $p < .01$). Inspection of the data revealed that seven (10%) of the 73 cases involving a Hispanic student resulted in legal action. All seven cases were classified as substantive.

Discussion

This study provides new evidence in support of the reliability and validity of the distinction

Table 3
Threat Characteristics in the Transient/Substantive Classification (n = 844)

Predictors	Substantive classification	
	OR	95% CI
Gender[a]	.8	[.51, 1.21]
Grade	1.2***	[1.12, 1.27]
Black[b]	1.2	[.81, 1.88]
Hispanic[b]	.9	[.46, 1.81]
Other[b,c]	.7	[.37, 1.46]
Threat of bomb	6.9***	[2.76, 17.32]
Harm to self and others	10.0***	[4.82, 20.80]
Unspecified threat	1.3	[.71, 2.30]
Battery without weapon	2.8***	[1.57, 5.12]
Threat of homicide	2.0*	[1.12, 3.45]
Threat communicated: indirectly[d]	1.0	[.66, 1.53]
Threat communicated: implicitly[d]	.9	[.50, 1.57]
Firearm involved	2.2	[.98, 4.97]
Knife or sharp-edged weapon involved	6.6***	[3.43, 12.77]
Other weapon involved	1.8	[.56, 6.07]

Note. *OR* = odds ratio; CI = confidence interval.
[a] Male is the reference group. [b] White is the reference group. [c] Other includes Asian, mixed race, and unknown. [d] Directly communicated threats is the reference group.
* $p < .05$. *** $p < .001$.

Table 4
Warning Behaviors in the Transient/Substantive Classification (n = 148)

Predictors	Substantive classification	
	OR	95% CI
Gender[a]	.9	[.54, 1.35]
Grade	1.2***	[1.14, 1.29]
Black[b]	.8	[.54, 1.31]
Hispanic[b]	.6	[.27, 1.22]
Other[b,c]	.8	[.39, 1.48]
Warning behaviors	2.1***	[1.84, 2.49]

Note. *OR* = odds ratio; CI = confidence interval.
[a] Male is the reference group. [b] White is the reference group. [c] Other includes Asian, mixed race, and unknown.
*** $p < .001$.

between transient and substantive threats used in the VSTAG. The interrater reliability of the transient-substantive classification was supported by moderate levels of agreement between research coders and school teams. The validity of the distinction between transient and substantive threats was supported by the pattern of differences in threat characteristics, especially the association of substantive threats with more serious warning behaviors and student characteristics. In addition, substantive threats were more likely to receive disciplinary measures and legal actions than transient threats. Finally, substantive threats were 36 times more likely to be attempted than transient threats. Overall, these findings complement and extend the body of research showing positive outcomes associated with using the VSTAG threat assessment model (Allen et al., 2008; Cornell et al., 2012; Cornell et al., 2011; Cornell et al., 2009; Cornell et al., 2004; Nekvasil & Cornell, 2015).

Reliability of the Transient/ Substantive Distinction

The percentage agreement between coders and school teams was 70% and the kappa coefficient was .53. Kappa measures the agreement between raters above the level of agreement that could be expected by chance. A kappa value of 0 indicates no agreement greater than what would be expected by chance and a value of 1.00 indicates complete agreement. A kappa value of .53 is comparable to the field trials used to establish diagnoses for the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) (American Psychiatric Association, 2013). For example, the kappa levels for schizophrenia and binge eating disorder were considered acceptable within the moderate range 0.40–0.59 (Regier et al., 2013).

The major source of disagreement between research coders and school teams was that teams tended to classify cases as substantive which the coders classified as transient. It is possible that school teams had additional information beyond what was presented in the narratives that may have justified a substantive classification, but a more likely explanation is that the teams tended to use the substantive classification more inclusively. To illustrate the discrepancy between the research coders and the school teams, we present three case examples. These are examples of the kind of errors in classification that we have observed in training

Table 5
Logistic Regression Odds Ratio and Confidence Intervals for Threat Outcomes (N = 844)

Predictors	Attempted threat		Out-of-school suspension		Change in placement		Legal action	
	OR	95% CI	*OR*	95% CI	*OR*	95% CI	*OR*	95% CI
Gender[a]	.5	[.18, 1.37]	1.4	[.96, 2.05]	1.3	[.75, 2.08]	.9	[.34, 2.13]
Grade	.9	[.74, 1.04]	1.1***	[1.06, 1.17]	1.1**	[1.03, 1.18]	1.3**	[1.10, 1.53]
Black[b]	1.2	[.42, 3.14]	1.2	[.84, 1.70]	.9	[.56, 1.48]	1.7	[.66, 4.45]
Hispanic[b,c]	—	—	.9	[.51, 1.58]	.7	[.30, 1.61]	5.3**	[1.70, 16.66]
Other[b,d]	.7	[.08, 5.36]	.8	[.46, 1.32]	1.7	[.87, 3.34]	1.8	[.45, 7.28]
Substantive threats	36.3***	[8.02, 164.38]	4.8***	[3.30, 6.90]	9.7***	[6.30, 14.78]	15.0***	[5.48, 41.06]

Note. *OR* = odds ratio; CI = confidence interval.
[a] Male is the reference group. [b] White is the reference group. [c] There were no ($n = 0$) Hispanic cases of an attempted threat to include this variable in this analysis. [d] Other includes Asian, mixed race, and unknown.
** $p < .01$. *** $p < .001$.

workshops as well. Details of these cases have been deidentified to protect the confidentiality of the students and schools.

In the first case, a first-grade student (age 6) engaged in an argument with her special education teacher and threatened to kill her. Although the teacher was reported to have no concern or fear for her safety, the school team elevated the classification to substantive because the threat was directed toward a teacher and the student had witnessed violence at home in the previous year. Threats toward a teacher might be regarded as a serious disciplinary violation meriting serious consequences; however, such threats do not automatically merit a substantive classification (Cornell & Sheras, 2006). This is a common misperception in training exercises when trainees are asked to classify a case that involved a student shouting threats toward a teacher. Consistent with the VSTAG guidelines, the first-grade student likely threatened to kill her teacher in a moment of anger and had no substantive intention of carrying out the threat. The student's exposure to domestic violence may be a serious concern that merits counseling and might help explain the student's emotional dysregulation, but it does not merit a more serious threat classification. Lastly, the child's special education status could affect her interactions with teachers. Appropriate psychoeducation and behavioral modeling would improve her classroom experience and avoid an overreaction by the school.

The second case involved a sixth-grade student (age 11) with a history of disciplinary referrals. In a counseling session, the student stated that he was going to blow up the school using explosives. Upon further inquiry by the threat assessment team, it was determined that he had no explosives. The team decided that the student did not actually intend to make a bomb, but was expressing frustration and wanted to frighten others; nevertheless, the team decided to classify the threat as substantive because a bomb threat would be highly disruptive to the school and a criminal act. The VSTAG guidelines note that a bomb threat in which there is no bomb and only an intent to be disruptive is a good example of the distinction between threat assessment and disciplinary action (Cornell & Sheras, 2006). A false bomb threat is a serious disciplinary and legal violation, but from a threat assessment perspective, it is a transient threat that does not pose a serious risk of harm to others.

In the third case example, an eighth-grade student (age 13) with a history of violence outside of school stated that he was a member of Al-Qaeda and a classmate was on his kill list. Several students heard him and reported the statement to a teacher. During an interview with the threat assessment team, the student acknowledged his threat and shared five additional names on his kill list. The boy had no known affiliation with Al-Qaeda and had only a vague idea that it was a terrorist organization. Nevertheless, the team elevated the classification to substantive despite his teacher's belief that the boy had no intention to harm anyone and seemed to be making a threat to evoke a response from his classmates. The VSTAG guidelines indicate that such a threat is likely to be transient, because the student is seeking attention and lacks substantive intent to carry out the threat (Cornell & Sheras, 2006).

The first objective of threat assessment is to determine whether a threat of violence exists. This decision has immediate practical consequences because a serious threat requires protective action to reduce the risk of violence. To achieve this objective, school teams must be able to focus on the seriousness of a threat separately from the seriousness of a school disciplinary infraction. A false bomb threat or a threat directed toward a teacher can be a legal violation or a disciplinary infraction with serious consequences, but not pose a serious threat of violence (Cornell & Sheras, 2006).

Criterion Validity of the Transient/ Substantive Distinction

School teams using the VSTAG model demonstrated consistency in identifying substantive threats by relevant characteristics of a serious threat. The features associated with a substantive threat were consistent with both the VSTAG model and the literature on warning behaviors (Cornell & Sheras, 2006; Meloy et al., 2012). For example, a higher number of warning behaviors was moderately associated with a substantive classification ($OR = 2.1$). Specifically, threats classified as substantive included more warning behaviors, such as history of violence, leakage, use of weapons, and other disturbing behaviors. These findings are consis-

tent with previous studies which found that warning behaviors indicate an individual's increasing risk of violence and are common among adolescent school shooters (Meloy et al., 2012). This study provides one of the few attempts to validate the association between warning behaviors and more serious threats within schools.

There was a strong association between a substantive classification and a threat to harm self as well as others. The presence of suicidal intent understandably raises concern, because it suggests the student is highly distressed, and a student who feels hopeless or desperate might be less inhibited by the risk of punishment (Cornell & Sheras, 2006). We caution, however, that most student threat cases do not involve concomitant threats of self-harm, and the correlation between suicide and threats to harm others is low (Burnette, Huang, Maeng, Datta, & Cornell, 2017, August).

As hypothesized, there was a strong association ($OR = 6.6$) between substantive classification and the possession of knives or other sharp-edged weapons. Unexpectedly, threats by students in possession of a firearm was not a statistically significant predictor of a substantive classification. One explanation may be that there was an insufficient number of substantive cases (13) involving a firearm to generate conclusive results. For example, the majority of threats involving the possession of a weapon were classified as transient because the students did not have access to such weapons and their threats were largely unsubstantiated. One case involved an elementary student who was not in possession of the weapon on school property. Another case involved an elementary student in special education services who threatened to shoot a classmate with his gun, but the threat was deemed transient after the school team confirmed the student did not have access to a firearm at home. In such cases, it is important not to dismiss a threat too quickly, and to consider all available information such as the student's previous behavior, his or her response to the assessment process, and whether the conflict or problem underlying the threat has been resolved.

Lastly, the moderate associations between a substantive classification and a threat of battery without a weapon was not hypothesized but in retrospect makes sense. School teams recognize that fighting is a relatively common event in school settings (Kann et al., 2016) and so there is an appreciable risk that a threat to fight will be carried out. Although the threat of a shooting is more ominous and demands attention, it is far less likely to be carried out (Nekvasil et al., 2015) than a threat to physically assault someone (Singer & Flannery, 2000).

The transient/substantive distinction is not based on a single factor, and no single characteristic is determinative. Consequently, the significant predictors of a substantive classification should not be interpreted in isolation. Because the majority of student threats are not carried out (Cornell et al., 2004; Nekvasil & Cornell, 2012), threat assessment requires a comprehensive evaluation of the nature and characteristics of the threat, including the student's age, credibility, and previous history of violence and disciplinary referrals (Cornell & Sheras, 2006). For example, a threat should not be classified as substantive simply because a student carries a pocket knife. Although the possession of a knife for any reason is not acceptable in school, for the purposes of threat assessment, schools should be concerned with the student's potential to harm someone. The student might carry a pocket knife as a tool rather than as a weapon, or might have accidentally brought it to school.

The distinction between transient and substantive threats allows school teams to focus their efforts on threats that are considered serious. However, the threat assessment team is concerned with preventing violence as opposed to predicting violence. When schools identify that a threat is serious, they will take actions to prevent it from being carried out; thus it is not feasible to assess the predictive accuracy of the assessment with a conventional scientific design. A rigorous experimental study of prediction is not practical or ethical because it would involve teams taking no intervention so that researchers can observe which threats are carried out.

Threat outcomes. By definition, a threat is classified as substantive because the school team determines that the student might carry out the threat, in accordance with the VSTAG model. Only four threats (.5%) were carried out. Because so few threats were carried out, *attempts* to carry out the threat were examined. The frequency of threats that were attempted was still low (21 cases, approximately 3%), but

was sufficient to detect differences between substantive and transient cases. Our analyses found that substantive threats were much more likely to be attempted ($OR = 36.3$) than transient threats. Specifically, 19 of 189 (10%) substantive cases were attempted compared to two of 655 (.3%) transient cases. This is valuable support for the transient/substantive distinction and suggests that school teams are using the classification appropriately.

As expected, students identified as making substantive threats received more serious consequences. Substantive threats were strongly associated with change in placement ($OR = 9.7$) and legal action ($OR = 15.0$), and moderately associated with out-of-school suspensions ($OR = 4.8$). These findings make sense because school authorities are more likely to conclude that students who pose a more serious threat should be suspended from school and/or moved to a different school placement. Also, law enforcement authorities are more likely to arrest, charge, or incarcerate a student who has made a serious threat than one whose threat is deemed not to be serious. However, there are cases such as a false bomb threat that are not serious as threats, but nonetheless are serious crimes that could result in legal consequences.

Our findings indicate that school teams used the transient/substantive distinction consistent with the VSTAG model to make reasonable and defensible decisions in responding to students who have made threats of violence. Specifically, the VSTAG model's seven-step decision tree aids schools in distinguishing between serious threats and serious disciplinary infractions, and has been shown to reduce the number of long-term suspensions and other punitive actions toward students, such as transferring the student to another school (Cornell et al., 2012; Cornell et al., 2011; Cornell et al., 2009; Nekvasil & Cornell, 2015). As hypothesized, substantive cases were more likely to involve older students, possession of a weapon, and a higher number of warning behaviors. The findings suggest possible patterns in threat characteristics and warning behaviors that are associated with serious and nonserious. Transient and substantive cases also differed in case outcomes and more serious outcomes were implemented for threats classified as substantive, which is consistent with previous research (Cornell et al., 2004). Overall, these results provide evidence that school teams systematically assessed and managed student threats of violence according to a set of guidelines and decision-tree process described in the VSTAG manual. These findings support the idea that threat assessment can be designed and evaluated as an evidence-based approach using structured professional judgment.

Study Limitations and Directions for Future Research

This was a retrospective study in which survey participants reported on threat cases at the end of the school year. In a prospective study, researchers could record information on threats as the cases unfold in real time to maintain independence of the threat classification and outcome. However, it was not possible to monitor or record case data prospectively. In an ideal study, team members would record their observations and decisions prospectively and the case outcome would be assessed by independent sources. Another limitation is that the assessment of warning behaviors was based on a review of available written narratives and may not have contained all the information relevant to the variables being measured. Nevertheless, this study provides new information regarding the consistency of team decision-making in distinguishing transient from substantive threats.

The current study provides direct empirical support for the transient/substantive distinction based on a large sample of schools that implemented threat assessment as a preventive measure. These schools were not formally conducting research on threat assessment, so these findings represent evidence of effectiveness rather than efficacy. The schools conducted threat assessments in real-world conditions without the benefits of researcher supervision and the controlled conditions found in efficacy studies (Gottfredson et al., 2015). Effectiveness studies often detect lapses in implementation fidelity or quality of program delivery. Although the overall results support the reliability and validity of the transient/substantive distinction, the study identified some problems in the fidelity of VSTAG implementation, described below.

Training implications. The current study uncovered some training needs for threat assessment teams. First, threat assessment training should emphasize that while a threat may be a

serious disciplinary violation, it may not be a serious threat of violence. The tendency for school teams to classify any bomb threat as substantive, regardless of student intent, threat credibility, and other factors, was evident through the strong association ($OR = 6.9$) observed in the first regression model. Even in instances where a threat is especially disruptive or disturbing, accurate threat assessment requires school teams to examine the seriousness of the threat of harm rather than the seriousness of the disciplinary infraction.

A second implication involves school responses to transient threats. In this study, 70.4% (133 of 189 suspensions) of substantive threats resulted in school suspensions compared to 31% (201 of 655 suspensions) of transient threats. Although this finding was consistent with the study hypothesis, nearly a third of transient threats resulted in suspensions. Out-of-school-suspensions are often unwarranted, and are only recommended for the most serious cases (Cornell & Sheras, 2006). School suspension has come under increasing criticism as a disciplinary practice that is associated with school disengagement, academic failure, and school dropout (Morgan, Salomon, Plotkin, & Cohen, 2014; U.S. Department of Education, 2014). Thus, suspension is rarely appropriate for a transient threat. Schools using suspension for transient threats should review their discipline practices.

In summary, this study contributes to an innovative effort to further establish threat assessment as an evidence-based practice for violence prevention. These findings indicate that school-based teams made reliable distinctions between transient and substantive threats, appropriately linking warning behaviors and concerning threat characteristics with substantive threats. The transient-substantive distinction helps schools to respond proportionately to the seriousness of a threat, avoiding overreactions and making limited use of severe consequences such as suspensions, change in school placement, and legal consequences.

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Received April 10, 2017
Revision received October 23, 2017
Accepted October 30, 2017 ■

Received: 28 May 2018 | Accepted: 17 September 2018

DOI: 10.1002/pits.22194

WILEY

RESEARCH ARTICLE

School threat assessment versus suicide assessment: Statewide prevalence and case characteristics

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Funding information
National Institute of Justice, Office of Justice Programs, U.S. Department of Justice, Grant/Award Number: #NIJ 2014-CK-BX-0004

Abstract

Threat assessment is a violence prevention strategy used to investigate and respond to threats to harm others. In 2013, Virginia mandated the use of threat assessment teams for threats to self and to others, effectively subsuming suicide assessment with threat assessment and raising questions about the distinction between the two practices. In a statewide sample of 2,861 cases from 926 schools, there were more threats to self (60%) than others (35%), with only 5% involving threats to both self and others. Threats to self were more likely to be made by females (odds ratio [OR] = 3.38) and students with fewer prior disciplinary actions (OR = 0.48). Threats to self were much less likely to involve a weapon (OR = 0.07), but more likely to be attempted (OR = 1.50) and result in mental health services (OR = 2.96). They were much less likely to result in out-of-school suspensions (OR = 0.07), legal action (OR = 0.17), and/or changes in placement (OR = 0.53). Overall, these findings support a clear distinction between suicide and threat assessment.

KEYWORDS
school safety, suicide assessment, threat assessment, violence prevention

1 | INTRODUCTION

In the 1990's, a series of school shootings prompted US authorities in law enforcement and education to recommend the use of threat assessment in schools (American Psychological Association, 2013; Fein et al., 2002; NASP School Safety & Crisis Response Committee, 2014). Threat assessment is a systematic approach to violence prevention intended to assess individuals who communicate a threat of violence to others to determine whether they pose a serious threat to carry out a violent act (Cornell, 2015; Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). Although threat assessment is a relatively new school practice, suicide assessment is "a far more developed area of clinical practice than the assessment and management of threats to kill others" (Warren, Mullen, & McEwan, 2014, p. 29). Twenty-eight states mandate school personnel suicide prevention training and 14 additional states encourage schools to train personnel (American Foundation for Suicide Prevention, 2018), whereas only six states have implemented specific laws or procedures for school threat assessment programs (Woitaszewski, Crepeau-Hobson, Conolly, & Cruz, 2018).

In 2013, Virginia became the first state to mandate that all public schools establish threat assessment teams to evaluate students "whose behavior poses a threat to the safety of school staff or students" (*Code of Virginia*, § 22.1–79.4; Threat Assessment Teams & Oversight Committees, 2013). Given its breadth, the law effectively placed threats to self under the umbrella of threat assessment by mandating that a threat assessment team must evaluate "a student [that] poses a threat of violence or physical harm to self or others" (*Code of Virginia*, § 22.1–79.4; Threat Assessment Teams & Oversight Committees, 2013). School staff were surprised by this change in procedures because it seemed to require previously confidential results of a suicide assessment to be shared with law enforcement and other members of a multidisciplinary threat assessment team that ordinarily would not have access to such information. The state also did not differentiate threats to self and threats to others within guidelines for investigating threats and interviewing students and witnesses. The unexpected inclusion of suicide assessment within the threat assessment mandate created a challenge for educators and school-based mental health personnel to revise existing suicide assessment policies and practices (Cornell et al., 2016).

In response to the 2018 shooting at Stoneman Douglas High School, Florida enacted legislation that mandated threat assessment for its public schools (*Florida Senate Bill*, § 7026; Marjory Stoneman Douglas High School Public Safety Act, 2018). In emulation of the Virginia law, the Florida bill also extended threat assessment to include persons who exhibit "threatening or aberrant behavior that may represent a threat to the community, school, or self."

An important policy question is whether the practice of suicide assessment in schools should become part of the threat assessment process. To inform this question, the current study compared threat assessment cases in Virginia schools that involved a threat to others with those involving a threat to self. The study investigated how student threats to harm others compared to threats to harm self in prevalence, case characteristics, and school response. It should be noted that threats to harm self are not necessarily suicidal and that some youth engage in self-injury that is not suicidal (Muehlenkamp & Gutierrez, 2007), but this study is concerned primarily with suicide assessment.

1.1 | School-based suicide assessment

Suicide assessment can be distinguished from threat assessment based on its prevalence, case characteristics, and school responses. From 2001 to 2016, suicide was the third leading cause of death in school-aged youths in the United States (Centers for Disease Control and Prevention, 2017). Males had a higher rate of suicidal deaths (4.7 deaths/100,000) compared with females (1.4/100,000). The 2017 Youth Risk Behavior Surveillance Survey (YRBSS) found that approximately 17.2% of high school students seriously considered attempting suicide within the year preceding the survey; 13.6% reportedly made a suicide plan; 7.4% attempted suicide one or more times; and 2.4% made a suicide attempt that resulted in an injury, poisoning, or overdose requiring medical treatment (Kann et al., 2017). Female high school students had a higher prevalence for suicidal ideation, planning, and attempts compared to male students.

Although suicidal ideation and behaviors are observed in many schools, completed suicides at school are rare. The Centers for Disease Control and Prevention (CDC) reported that a total of 632 violent youth deaths occurred at schools between 1992 and 2014 (Musu-Gillette, Zhang, Wang, Zhang, & Oudekerk, 2017). Of the reported 632 violent deaths at school nationwide, 127 (approximately 20%) were suicides.

Given the prevalence of youth suicides over the past 15 years and the frequency of teen suicide ideation, it is clear that suicide risk assessment is much-needed in schools. Research indicates that suicide risk assessment is a promising approach to prevent youth suicide (Crepeau-Hobson, 2013). Researchers evaluated 3,443 student suicide risk assessments conducted within three large school districts between 2007 and 2010 and found that only 11% resulted in the student's hospitalization and no suicides were completed. As such, school-based suicide assessments are crucial for identifying and intervening with at-risk youths (American Foundation for Suicide Prevention, 2018; Erbacher & Singer, 2017) due to the "ideal context" schools provide "for prevention, intervention, positive development, and regular communication between schools and families" (National Association of School Psychologists NASP, 2016, p. 1). School psychologists in particular have been tasked with promoting the "recognition of risk and protective factors that are vital to understanding and addressing systematic problems such as…youth suicide" (National Association of School Psychologists NASP, 2010, p. 7).

1.2 | Case characteristics

There is a large body of research on risk factors for suicidal ideation or behavior (Brock & Reeves, 2018). These factors vary by age and gender and fluctuate over time (Gangwisch, 2010). Among children and adolescents, risk factors include hopelessness, purposelessness, low self-esteem, withdrawal or isolation, mental illness, drug or alcohol use, or a history of suicide attempts. In addition, an acute or situational event (e.g., bullying, break-up with a romantic partner, disciplinary crisis, death of a loved one) can result in stress or depression, increasing youths' risk for suicide ideation and/or behavior (Bridge, Goldstein, & Brent, 2006; Brock & Reeves, 2018; National Association of School Psychologists, 2010; Rudd et al., 2006; Valois, Zullig, & Hunter, 2015). For example, researchers found that cyberbullying victimization increases suicidal thoughts (Gini & Espelage, 2014), and general involvement in bullying as the victim or perpetrator increases an adolescent's risk for suicidal ideation and behavior (Yen, Liu, Yang, & Hu, 2015). Risk factors that are identified as immediate precipitants to a suicide attempt are termed warning signs and involve a youth creating a detailed plan of how, when, and where to commit suicide; acquiring weapons or the means to commit suicide; concealing the intentions to avoid being thwarted; and engaging in final acts (e.g., writing notes, giving away meaningful possessions; Brock & Reeves, 2018; Harrington, 2001).

1.3 | School use of suicide assessment

Suicide assessment is an established practice conducted by a single school psychologist or other trained mental health professional, typically in the form of a structured questionnaire to determine a student's potential level of risk for suicidal behavior. The school psychologist helps to implement intervention responses to decrease the student's risk suicidal behavior on a long-term basis (Brock & Reeves, 2018; National Association of School Psychologists, 2010). Specifically, the assessment determines the student's history of suicidal thoughts and behaviors (Crepeau-Hobson, 2013), the degree to which he/she feels connected with others in a meaningful way, has coping strategies to counter feelings of hopelessness, and whether or not the student has a current suicidal plan and means to carry it out (Brock & Reeves, 2018).

Suicide assessments are typically classified as low, moderate, or high based on the level of risk associated with the student's current risk and protective factors (Brock & Reeves, 2018). Typical school responses to suicide assessments emphasize parental consultation to encourage the student to receive therapeutic services. A moderate classification implies that the student experiences relatively frequent or severe suicidal thoughts, warranting parental consultation, encouragement to seek therapeutic services, and potential transportation to a psychiatric

emergency center. The most serious classification in a suicide risk assessment is characterized by the student's severe emotional pain, suicidal thoughts, and lack of perceived social supports. School responses can include immediate transportation to a psychiatric emergency facility coupled with the other school responses. Of note, school-based suicide risk assessment is the first step in a more involved mental health intervention process that typically requires expertise outside of the school for long-term care.

1.4 | School-based threat assessment

Student threats and acts of violence are relatively common in schools. From 2001 to 2016, homicide was the second leading cause of death in school-aged youths (Centers for Disease Control and Prevention, 2017). Males had a higher rate of homicidal deaths (5.4 deaths/100,000) compared with females (1.2/100,000). The 2017 YRBSS found that approximately 8.5% of high school students nationwide reported being in a physical fight on school property and 6% had been threatened or injured with a weapon (i.e., gun, knife, or club) on school property (Kann et al., 2017). Within the month preceding the survey, 3.8% of students reported carrying a weapon to school on at least 1 day. Another study similarly found that student threats of violence and aggressive behavior were relatively common in schools (Nekvasil & Cornell, 2012). Researchers surveyed 3,756 high school students and asked whether another student had threatened to harm them in the past 30 days. Approximately 12% of students reported being threatened and approximately 9% reported that the threat was carried out.

Although student threats and aggressive behaviors are observed in many schools, lethal acts of violence are rare. Of the 632 violent deaths at schools between 1992 and 2014, 505 or approximately 80% were homicides (Musu-Gillette et al., 2017). This translates to an average of 23 homicidal deaths at school per year and an annual rate of approximately 0.041 homicidal deaths per 100,000 school-age youths. While these are not precise calculations, they demonstrate that the risk of homicidal school violence is relatively low. Another study using data from the National Incident-Based Reporting System (Nekvasil, Cornell, & Huang, 2015) similarly found that homicides rarely occurred in schools (0.3% of all homicides) compared to other locations. However, the prevailing belief that homicides are likely events in schools can skew the perception of risk in evaluating a potentially dangerous student (Cornell, 2006).

1.5 | Threat characteristics

Threat assessment authorities have posited that there are warning behaviors or behavioral patterns that indicate a person has serious intent to carry out a threat (Meloy, Hoffmann, Guldimann, & James, 2012). Researchers examining incidents of targeted violence within schools and other settings found that most attackers had access to weapons before the violent incident and an obsession with violence (Hoffmann & Roshdi, 2013; Mohandie, 2014; O'Toole, 2000; Vossekuil et al., 2002). Further, students often communicated to a third party about their intent to commit a violent act, a warning behavior commonly known as leakage (Meloy & O'Toole, 2011). Leakage can occur through oral, written, or social media communications and communication is typically directed toward friends, classmates, or siblings rather than the intended victim (Meloy & O'Toole, 2011; O'Toole, 2000; Vossekuil et al., 2002).

Researchers also found that attackers engaged in behaviors that concerned others before the incident (93%), such as a known history of weapon use (63%), access to weapons before the incident (68%), fascination with violence displayed through class assignments or verbal communications (59%; Vossekuil et al., 2002). Some attackers had committed a known act of violence before the incident (31%) and/or had previously been arrested (27%; Vossekuil et al., 2002), coinciding with the notion that a history of violence is the strongest predictor of future violence (Monahan & Steadman, 1994). Lastly, Vossekuil et al. (2002) noted that the majority of attackers reported suicidal ideation (78%). Although suicidal ideation is a risk factor for the attackers that have in fact committed school shootings, it is not necessarily a risk factor for the larger group of students that threaten to harm others. Overall, these are case characteristics that school-based teams investigate during a threat assessment (Meloy et al., 2012; O'Toole, 2000; Vossekuil et al., 2002).

1.6 | School use of threat assessment

Threat assessment has emerged as a specialized form of violence prevention that has some important features that distinguish it from suicide assessment. A threat assessment is typically conducted to determine whether a person intends to carry out a specific threatened act, usually toward a targeted victim or group, within a relatively short time frame (Cornell & Datta, 2017; Cornell & Sheras, 2006). Threat assessment uses a step-by-step process to gather information, make systematic judgments using both case-specific and dynamic risk factors, and implement management strategies to reduce the risk of violence (Cornell & Sheras, 2006). The threat assessment process is often completed by a multidisciplinary team, typically consisting of a principal or assistant principal, school resource officer, school psychologist, school counselor, and/or a teacher. Together, the team determines the seriousness of the threat and implements appropriate management strategies.

When a threat assessment team determines that a threat is serious, the team will take protective actions to prevent an act of violence. Protective actions can include notifying targeted individuals and taking actions such as contacting the police. The team might initiate a variety of interventions such as counseling, mental health treatment, and hospitalization. Students might receive disciplinary consequences that range from a reprimand to school suspension, school transfer, or expulsion. There may be legal consequences including arrest, court charges, and incarceration.

1.7 | Current study

Violence directed to others and violence directed to self have similar underlying risk factors, especially in the adult literature (Monahan, Vesselinov, Robbins, & Appelbaum, 2017). However, there are important similarities and differences between threat assessment for *adolescents* who have *threatened* to harm someone and suicide assessments for *adolescents* who have *threatened* to harm themselves but not someone else. Although homicide and suicide among school-age youth have similar overall prevalence rates (18.4% vs. 17.0%), homicides are four times more likely to occur at school than suicides (Musu-Gillette et al., 2017). The rate of suicide in schools is 0.01 per 100,000 and the rate of homicide in schools 0.041 per 100,000. These calculations indicate that threat assessment and suicide assessment have similar rates of prevalence, but the media attention given to school shootings in which the student also committed suicide may create an impression that suicide and homicide are associated. The US Secret Service and US Department of Education noted in their study of school violence that five of the 41 attackers committed suicide, but there is no empirical indication that the typical suicide case also involves a threat to others (Vossekuil et al., 2002).

The threat assessment process may differ from suicide assessment in several ways within schools. Important distinctions are observed in the prevalence and the characteristics of students who threaten others versus themselves in terms of history of violent behavior, prior discipline problems, and weapon possession. In addition, suicide assessment is typically administered by a single school-based mental health professional, whereas threat assessment is a stepwise process conducted by a multidisciplinary school-based team (Brock & Reeves, 2018; Cornell & Sheras, 2006). Finally, the classification and management approaches differ between threats to self and threats to others. Management approaches for both types of assessments depend on the student's intent and level of imminence for the act to be carried out. In suicide assessment, approaches typically involve parental notification, therapeutic services, and/or transfer to an emergency psychiatric facility, often resulting in long-term intervention and care outside of the school (Brock & Reeves, 2018). In contrast, threat assessment management approaches range from asking the student to apologize in the case of a nonserious threat to more complex responses in a serious case. Schools are likely to respond more punitively and less sympathetically to students who threaten others versus themselves. Although a student who threats others is likely to be suspended from school as a punishment, a student who expresses suicidal feelings is less likely to be suspended.

Despite these important distinctions, Virginia's law mandated threat assessment teams to evaluate both students that pose a threat of violence to self or others and made no distinction between suicide assessment and threat assessment. Consequently, it is important to understand how threat assessment teams responded to threats of violence to self in comparison to threats of violence to others. Understanding the similarities and differences in these cases can inform future practice and legislation to ensure that school resources and prevention strategies are appropriate.

Since 2013, Virginia law (*Code of Virginia*, § 22.1–79.4; Threat Assessment Teams & Oversight Committees, 2013) also mandated that schools report information regarding their threat assessment cases through an annual School Safety Audit Survey. Specifically, school principals indicate the number of conducted threat assessment cases and whether the cases involved a threat to self, others, or both self and others. Thus, it was possible to examine the prevalence and case characteristics of both threats to self and threats to others in the current study. However, the study was limited to items adopted by the state agency in charge of the survey and were asked in one particular year (2014–2015).

The first research question was "How do threats of violence to self and others differ in prevalence?" The study examined how frequently schools conducted threat assessments for students who threatened others, threatened to harm themselves, or made both kinds of threats.

The second research question was "How do threats of violence to self and others differ in threat characteristics?" Consistent with previous research (Centers for Disease Control and Prevention, 2017; Cornell et al., 2018; Kann et al., 2017), it was hypothesized that threats to self would include more older students, female students, whereas threats to others would include more middle school students and disciplinary referrals. It was also hypothesized that threats against self would be less likely to involve the mention or possession of a weapon than threats against others.

The third research question was "How do threats of violence to self and others differ in school responses?" It was hypothesized that students who threaten suicide would be more likely to make an attempt to carry out their threat and that teams would be more likely to refer them for mental health services. In contrast, threats to others would be more likely to lead to the student being suspended, removed from school, arrested, and/or charged with an offense.

2 | METHODS

2.1 | Participants

The total descriptive sample consisted of 2,861 threats cases reported by 949 schools and involved three threat categories (e.g., threats to self, threats to others, and threats to self and others). The hypotheses comparing suicide assessment and threat assessment omitted 159 cases that were both threats to self and others, resulting in 2,702 threat cases reported by 926 schools, which included 492 (53%) elementary, 226 (24%) middle, and 208 (23%) high schools (Table 1). The racial/ethnic breakdown of students making the threats was 1,391 (51.5%) White, 769 (28.5%) Black, 203 (7.5%) Hispanic, 79 (2.9%) Asian, and 260 (9.6%) Other.[1] Most threats (64%) were made by males. Students making threats ranged from kindergarten to the 12th grade; the mean grade was sixth and the modal grade was fourth.

2.2 | Procedure

Data were obtained from the School Safety Audit Survey, an annual survey of schools completed online after each school year and conducted by the Virginia Department of Criminal Justice Services. The survey is mandated by state law (*Code of Virginia*, § 22.1–79.4; Threat Assessment Teams & Oversight Committees, 2013; *Code of Virginia*, § 22.1–279.8; School Safety Audits & School Crisis, Emergency Management, & Medical Emergency Response Plans Required, 1997) and had 100% participation by Virginia public schools. The state survey asked school principals to provide specific case details for a maximum of five student threat assessment cases during the 2014–2015 school year, including whether the cases involved threats to self or others. Of Virginia's 1,746 elementary, middle, and high schools, the majority (n = 1,498, 85.8%) had five or fewer cases, and thus reported all of their cases. The maximum was set at five to reduce the reporting burden on schools that had a large number of cases.

[1]The Other race/ethnicity category included students noted as Unknown or Mixed race.

TABLE 1 Descriptive statistics by threat type

Student	Threats to self *n* = 995 (36.8%) *n* (%)	Threats to others *n* = 1,707 (63.2%) n (%)	Total sample *N* = 2,702 (100%) n (%)	Threats to self and others *n* = 159 n (%)
School type				
Elementary	434 (43.6)	783 (45.9)	1,275 (47.2)	81 (50.9%)
Middle	301 (30.3)	533 (31.2)	770 (28.5)	41 (25.8%)
High school	260 (26.1)	391 (22.9)	657 (24.3)	37 (23.3%)
Sex				
Male	465 (46.7)	1,274 (74.6)	1,739 (64.4)	114 (71.7%)
Female	450 (45.2)	317 (18.6)	767 (28.4)	38 (23.9%)
Unknown	80 (8.0)	116 (6.8)	196 (7.3)	7 (4.4%)
Race/ethnicity				
White	536 (53.9)	855 (50.1)	1,391 (51.5)	99 (62.3%)
Black	248 (24.9)	521 (30.5)	769 (28.5)	42 (26.4%)
Hispanic or Latino	82 (8.2)	121 (7.1)	203 (7.5)	6 (3.8%)
Asian	31 (3.1)	48 (2.8)	79 (2.9)	2 (1.3%)
Other[a]	98 (9.8)	162 (9.5)	260 (9.6)	10 (6.3%)
SPED status	280 (28.1)	578 (33.9)	858 (31.8)	67 (42.1%)
History of violence in school	125 (12.6)	407 (23.8)	532 (19.7)	50 (31.4%)
History of disciplinary action	324 (32.6)	963 (56.4)	1,287 (47.6)	82 (51.6%)
Threat communicated: indirectly[b]	165 (16.6)	443 (26.0)	608 (22.5)	53 (33.3%)
Threat communicated: implicitly[b]	325 (32.7)	236 (13.8)	561 (20.8)	28 (17.6%)
Weapon involvement	18 (1.8)	355 (20.8)	373 (13.8)	13 (8.2%)
Attempted threat	54 (5.4)	54 (3.2)	108 (4.0)	8 (5.0%)
Mental health services	692 (69.5)	753 (44.1)	1,445 (53.5)	122 (76.7%)
Out-of-school suspension	54 (5.4)	786 (46.0)	840 (31.1)	71 (44.7%)
Change in placement	85 (8.5)	265 (15.5)	350 (13.0)	39 (24.5%)
Legal action	9 (0.9)	88 (5.2)	97 (3.6)	1 (0.6%)

[a]Other includes unknown and mixed race.
[b]Six cases out of 2,702 (i.e., <1%) were missing.

3 | MEASURES

3.1 | Case characteristics

Critical threat characteristics were identified from a checklist of survey items, including whether the threat was communicated directly (to the intended target), indirectly (to a third party), or implicitly (implied by behaviors and actions of concern). Teams reported whether the student had a history of violence or prior disciplinary actions, as well as whether the student threatened the use of a weapon or was in possession of one.

3.2 | Threat outcomes

Five kinds of threat outcomes (coded 1 for yes and 0 for no) were measured: whether the student (a) attempted to carry out the threat; (b) was referred for mental health services, (c) received an out-of-school suspension; (d) had a

change in school placement; and/or (e) was subjected to legal action (i.e., arrest, juvenile detention, or charges). Teams reported whether the student attempted to carry out the threat. Because of the low number of threats that were attempted (3.5%) or carried out (0.5%) in the sample, these categories were combined into an "attempted threat" category. Mental health services included referrals for school counseling, mental health evaluation (in or outside of the school system), or other therapeutic services. Out-of-school suspension of any duration from 1 to 365 days (approximately 92% were 1–10 days, defined as short-term suspensions in Virginia). Placement changes included transfer to another regular school or an alternative school, homebound instruction, or hospitalization. Legal actions included arrest, court charges, or incarceration in juvenile detention.

3.3 | Covariates

The analyses controlled for school demographic variables obtained from the state department of education database: school size, percent minority enrollment, and the percent of students that qualified for a free or reduced priced meal (FRPM), a commonly used proxy for socioeconomic status (SES). The analyses also controlled for student demographics obtained from the survey, which included gender, sex, race/ethnicity, and special education (SPED) status.

3.4 | Analytic strategy

To assess the first research question concerning the prevalence of threats to self or others, the number of cases involving threats to self, threats to others, and threats to both self and others were determined. To compare cases involving threats to self and threats to others, a small proportion (5%) of cases involving both threats to self and others were omitted from subsequent analyses. Descriptive statistics were calculated for key variables (e.g., sex, race/ethnicity, threat outcome, and school response) for the three types of threats (Table 1).

To address the second research question, a logistic regression model investigated the association of threat characteristics with a threat to self (coded as 1) versus a threat to others (coded as 0). Threat characteristics include a student's possession or use of a weapon, prior history of violence in school or disciplinary action, and the way in which the threat was communicated. To answer the third research question, five logistic regression models investigated the likelihood of a threat to self resulting in attempted threats, mental health services, out-of-school suspensions, change in placement, or legal action.

All models controlled for student- and school-level demographic covariates that included school size, percent minority enrollment, and percent of students eligible for FRPM. Cluster robust standard errors, using Taylor series linearization (Huang, 2014; Rust, 1985), which accounted for students nested within schools, were used to reduce type I errors. Logistic regression results are presented using standard odds ratios (ORs) and 95% confidence intervals, where ORs > 1 signify a higher likelihood of a threat to self or a certain threat outcome and ORs < 1 indicate a lower likelihood. To aide in the interpretation of effect sizes, when predictors were dichotomous, ORs were converted into Cohen's *d* values using ln(OR)/1.81 (Chinn, 2000). Using Cohen's (1992) guidelines, effect sizes were interpreted as small (~0.20), moderate (~0.50), or large (~0.80).

4 | RESULTS

The 2,861 cases included three groups: (a) threat to others (1,707; 60%), (b) threats to self (995; 35%), and (c) threats to both self and others (159; 5%; Table 1). The small proportion of cases involving a threat to both self and others was of interest. Inspection of the data revealed that 114 of 159 (72%) cases involved males and 81 (51%) cases involved elementary school students. These students lacked a history of violence (31%) and the majority of the threats did not involve a weapon (92%). Only 8 of 159 (5%) cases were attempted and only three of the

attempted cases were considered serious by threat assessment teams and received substantial attention. These eight cases primarily involved students who engaged in self-harming behaviors (e.g., cutting) or acquired razor blades for themselves and/or a friend to engage in self injury. In response, most of the students were referred for mental health services (77%) and were able to return to their original school (76%) without a change in placement. Less than half received an out-of-school suspension and only 1% was subject to legal intervention (e.g., arrest or court charges).

Regarding the second research question, only two variables (i.e., SPED status and history of violence in school) were not statistically significant predictors of threats to self (both *p*s > 0.05; Table 2). Students making threats to self were less likely to have prior disciplinary action (OR = 0.48, $p < 0.001$, $d = -0.41$) and more likely to communicate the threat implicitly versus directly (OR = 2.93, $p < 0.001$, $d = 0.59$). As hypothesized, threats to self were more likely to be made by female than male students (OR = 3.38, $p < 0.001$, $d = 0.67$) and less likely to involve a weapon (OR = 0.07, $p < 0.001$, $d = 1.46$).

Regarding the third research question, only 4% of all reported threats were attempted (Table 1). Results of logistic regression models indicated threats to self were more likely to be attempted compared to threats to others (OR = 1.50, $p < 0.05$, $d = 0.22$; Table 3). Female students were more likely to attempt a threat to self than a threat to

TABLE 2 Logistic regression odd ratios for threat characteristics ($n = 2,696$)

	Threat to self		
Predictors	**OR**	**95% CI**	
School-level variables			
School size	0.93*	0.88	0.98
Percent minority enrollment	1.01*	1.00	1.02
Percent FRPM eligible	0.99*	0.98	1.00
Student-level variables			
Female[ab]	3.38***	2.74	4.17
Elementary school grade[c]	1.42*	1.02	1.97
High school grade[c]	1.92**	1.28	2.87
SPED status[d]	1.04	0.83	1.31
Black[e]	0.70**	0.54	0.92
Hispanic[e]	1.10	0.75	1.62
Asian[e]	0.59	0.31	1.14
Other[ef]	0.77	0.53	1.11
History of violence in school	0.87	0.64	1.19
Prior disciplinary action	0.48***	0.38	0.61
Threat communicated: indirectly[gh]	0.65**	0.49	0.88
Threat communicated: implicitly[gh]	2.93***	2.20	3.91
Weapon involvement	0.07***	0.04	0.12

Note. Results used cluster robust standard errors.
FRPM = free or reduced price meal.
[a]Male is the reference group.
[b]Due to some schools failing to report the student's gender, researchers controlled for unknown gender.
[c]Middle school students were the reference group.
[d]Students identified as nonspecial education is the reference group.
[e]White is the reference group.
[f]Other includes unknown and mixed race.
[g]Directly communicated threats is the reference group.
[h]Six cases out of 2,702 (i.e., <1%) were missing.
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

others (OR = 1.99, $p < 0.001$, $d = 0.38$). No other student- and school-level variables were statistically significant (i.e., $ps > 0.05$).

Students who made threats to self were more likely to receive mental health services (OR = 2.96, $p < 0.001$, $d = 0.60$) and less likely to receive an out-of-school suspension (OR = 0.07, $p < 0.001$, $d = 1.47$), face legal action (OR = 0.17, $p < 0.001$, $d = 0.98$), or have a change in placement (OR = 0.53, $p < 0.001$, $d = 0.35$; Table 3) than students who made threats to others.

5 | DISCUSSION

This study provides new evidence in support of the distinction between suicide assessment and threat assessment. Contrary to the perception generated by highly publicized school shootings in which the shooter also committed suicide, the current study found, in a large statewide sample, that most students who threatened others were not identified as suicidal. Further, most students who threatened to harm themselves did not threaten to harm others. Ninety-five percent of students identified for a threat assessment threatened others or themselves; only five percent threatened both themselves and others. Overall, these findings have important policy implications for school systems and legislative bodies who might mistakenly assume that threats to self and others frequently co-occur and require similar responses.

5.1 | Threat characteristics

Cases of threats to others were clearly distinguishable from threats to harm self. Students who made threats to self were evenly distributed across gender, whereas students who made threats to harm others were predominantly male (Table 1). This gender difference parallels research that consistently finds a higher proportion of depression and suicidal ideation among female youths (Harrington, 2001; Kann et al., 2017) and the predominance of physical violence among male rather than female youths (Nansel et al., 2001). In addition, students who made threats to others had a greater prevalence of prior violence and disciplinary action (Table 1), which is consistent with threat assessment literature on warning behaviors (Mohandie, 2014; O'Toole, 2000; Vossekuil et al., 2002). Based on Cohen's (1992) effect size guidelines, threats to others had a moderate association with prior disciplinary action and a strong association with the use or possession of a weapon (Table 2). Students who threatened themselves were more likely to communicate their threats through implicit behaviors compared with the overt warning behaviors demonstrated by students who threatened others.

5.2 | School responses

School threat assessment teams responded differently to students who threatened themselves rather than others. Female students were much more likely to make and attempt threats to harm themselves compared with male students. This finding is consistent with the suicide literature that indicates a high rate of females threaten and attempt self-harm (Brock & Reeves, 2018; Harrington, 2001; Kann et al., 2017). In contrast, previous threat assessment literature indicated that male students were much more likely to receive a threat assessment than female students (Cornell et al., 2018). Further, students who threatened to harm themselves were 1.5 times more likely to attempt to carry out the threat compared students threatening others. Previous literature on the prevalence of attempted and carried out suicides among school-aged youths also supports this finding (Kann et al., 2017; Musu-Gillette et al., 2017).

Students threatening themselves had odds that were approximately three times higher to receive mental health services than students threatening others. This finding substantiates the suicide literature that emphasizes increased mental health services for students experiencing suicidal ideation and/or intent (Brock & Reeves, 2018;

TABLE 3 Logistic regression odds ratio for attempted threats and threat outcomes (n = 2,702)

	Attempted Threat			Mental Health Services			Out-of-school Suspension			Change in Placement			Legal Action		
Predictors	**OR**	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**		**OR**	**95% CI**	
School-level variables															
School size	1.01	0.96	1.07	0.99	0.96	1.02	1.00	0.96	1.04	1.00	0.96	1.04	1.02	0.96	1.09
Percent minority enrollment	1.00	0.99	1.01	1.0	0.99	1.00	0.99*	0.99	1.00	1.00	0.99	1.00	0.99	0.98	1.00
Percent FRPM eligible	1.01	0.99	1.02	1.01**	1.00	1.01	1.02***	1.01	1.02	1.01**	1.00	1.02	1.01	0.99	1.02
Student-level variables															
Female[ab]	1.99***	1.36	2.90	1.06	0.86	1.30	0.81	0.63	1.03	0.92	0.68	1.23	0.78	0.42	1.44
Elementary school grade[c]	0.77	0.46	1.30	0.9	0.69	1.17	0.45***	0.33	0.60	0.44***	0.31	0.62	0.14***	0.06	0.31
High school grade[c]	1.05	0.58	1.91	1.07	0.77	1.50	1.13	0.78	1.64	1.57*	1.06	2.32	1.74*	1.01	2.98
SPED status[d]	1.27	0.83	1.96	1.04	0.87	1.25	1.26*	1.02	1.55	1.22	0.93	1.60	0.82	0.50	1.32
Black[e]	1.12	0.63	2.01	0.71**	0.57	0.88	1.2	0.92	1.55	1.06	0.77	1.45	1.07	0.59	1.97
Hispanic[e]	1.31	0.61	2.83	1.00	0.70	1.43	1.00	0.66	1.50	1.17	0.72	1.90	1.75	0.79	3.88
Asian[e]	0.95	0.27	3.28	1.63	0.94	2.82	0.34**	0.17	0.69	0.54	0.22	1.36	0.43	0.06	3.16
Other[ef]	1.16	0.51	2.64	0.82	0.60	1.13	0.82	0.58	1.16	0.9	0.59	1.39	1.23	0.56	2.71
Threat to Self	1.50*	1.01	2.23	2.96***	2.38	3.67	0.07***	0.05	0.10	0.53***	0.40	0.71	0.17***	0.07	0.42

Note. All results use cluster robust standard errors. *p < 0.05. **p < 0.01. ***p < 0.001.

FRPM = free or reduced price meal.

[a]Male is the reference group.

[b]Due to some schools failing to report the student's gender, researchers controlled for unknown gender.

[c]Middle school students were the reference group.

[d]Students identified as non-special education is the reference group.

[e]White is the reference group.

[f]Other includes unknown and mixed race.

*p < 0.05.**p < 0.01.***p < 0.001.

Crepeau-Hobson, 2013). Such services, alongside a suicide assessment, respond to the student's level of distress, hopelessness and desperation, and avoid unnecessary punitive school responses to a predominately mental health issue. These results support previous research that indicates mental health professionals have established procedures for responding to student suicidal ideation and behavior in schools (Crepeau-Hobson, 2013; Kreuze, Stecker, & Ruggiero, 2017; Warren et al., 2015).

Finally, disciplinary consequences were used more frequently in threat assessment compared to suicide assessment; students who threatened others were 14 times more likely to receive out-of-school suspensions and six times more likely to receive legal action. Students who threatened others also had a moderate association with a change in placement. These differences in school responses further support the pattern of distinction between threats to self and threats to others. Overall, these findings indicate practical and conceptual distinctions between threat assessment and suicide assessment both in warning behaviors and school responses.

6 | CLINICAL IMPLICATIONS

In contrast to threat assessment, suicide risk assessment is a well-established practice that is widely supported by decades of research (Warren et al., 2015). Evidence-based screening tools and procedures exist to assess suicide risk, such as the Suicide Assessment Five-Step Evaluation and Triage, Columbia-Suicide Severity Rating Scale, and Suicide Ideation Questionnaire (Substance Abuse and Mental Health Services Administration, 2017). Professionals conducting suicide risk assessment and threat assessment both seek to understand the context in which the threat was made and the underlying concerns that prompted the threat (Brock & Revees, 2018; Cornell & Sheras, 2006). However, one mental health professional typically conducts a suicide risk assessment from an empathic and supportive perspective (Brock & Revees, 2018). In contrast, the multidisciplinary team conducts the threat assessment from an investigative perspective, evaluating the details of the threat and student's intent to cause harm. Suicide assessment is concerned with one student's safety, typically leading the school to urge parents to secure mental health services for their child. Conversely, threat assessment is concerned with the safety of others, which may require protective actions such as warning targeted victims and contacting law enforcement. Although a student receiving a threat assessment may receive emotional support and referral for mental health services, there will also be efforts to resolve interpersonal conflicts, disciplinary consequences, and possible legal action.

Overall, the results presented here suggest that students who make a threat to harm themselves should not automatically receive a threat assessment. Mental health professionals can assess threats to self without referral to the threat assessment team, unless the relatively infrequent situation occurs in which there is both a threat to self and others. In these hybrid cases, the team could supplement the procedures typically used to assess a threat to others with the methods typically used to assess threats to self (Substance Abuse and Mental Health Services Administration, 2017; Warren et al., 2014).

7 | LIMITATIONS AND CONCLUSION

This retrospective study relied on survey reports of threat assessments conducted during the prior school year. In a prospective study, researchers could gather information on threats as the cases unfold in real time to maintain independence of the threat outcome. However, it was not possible in this study to monitor or record case data prospectively. Another limitation was that schools were not asked to distinguish between threats of self-harm and threats of suicide when reporting the number of assessments conducted for threats to self. More detailed information about the exact nature of these threats is warranted to investigate the differences in types of suicidal threats. Finally, longitudinal information on students that made a threat to self would be beneficial in evaluating the

appropriateness of school responses. It would be valuable to investigate how students fared after a threat assessment and whether there were further threats, conflicts, or other problems in subsequent years.

Despite these limitations, the findings presented provide empirical support for the distinction between threats to self and threats to others based on a large sample of schools that implemented threat assessment as a violence prevention strategy. Ultimately, these results suggest that threat assessment and suicide risk assessment should be considered independent practices except in the rare hybrid cases when a student threatens to harm both others and self. For such cases, the overlapping nature did not automatically increase the severity of risk, as evidenced by the small number of attempts. Schools also did not administer more severe disciplinary action in hybrid cases. These critical findings are often misconstrued by the media due to highly publicized school shootings that resulted in the attacker's suicide. These results also substantiate previous research that indicates the rates of both homicidal and suicidal incidents are low compared to the rates of homicidal or suicidal acts of violence (Felthous & Hempel, 1995). Both suicide and threat assessment are appropriate in the hybrid cases, but the engagement of a multidisciplinary team and law enforcement are unnecessary for the large number of students threatening to harm themselves only. In suicide cases, the involvement of a large team might be counterproductive to the process of supporting the student and gaining his or her trust. As more states and school divisions adopt policies to implement school-based threat assessment, they should carefully consider the important distinctions between the types of threats identified in the current study to avoid suicide assessment being subsumed into the threat assessment process.

ACKNOWLEDGMENTS

We thank members of the project research team including Brittany Crowley, Pooja Datta, Yuane Jia, Tim Konold, Marisa Malone, Patrick Meyer, and Shelby Stohlman. This study was supported in part by Grant #NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Virginia Department of Criminal Justice Services.

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How to cite this article: Burnette AG, Huang F, Maeng JL, Cornell D. School threat assessment versus suicide assessment: Statewide prevalence and case characteristics. *Psychol Schs*. 2018;1–15. https://doi.org/10.1002/pits.22194

Contemp School Psychol
DOI 10.1007/s40688-017-0146-x

SYSTEMATIC REVIEW

Statewide Implementation of Threat Assessment in Virginia K-12 Schools

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Abstract In 2013, VA became the first state to mandate the use of threat assessment teams in its K-12 public schools. We provide an account of the development and adaptation of threat assessment as a school safety practice and research on the Virginia Student Threat Assessment Guidelines in VA schools. We describe the state law and the question of whether suicide assessment should be considered a form of threat assessment. We then describe research on the statewide implementation of threat assessment and summarize results indicating overall positive outcomes for schools who are actively engaged in threat assessment, but qualitative findings from a needs assessment identified team training gaps as well as a need to orient the larger school community to the threat assessment process. We describe a series of online programs to educate students, parents, teachers, and other school staff about the threat assessment process. In conclusion, this paper presents some lessons learned in the statewide implementation of threat assessment as a safe and effective violence prevention strategy.

Keywords School discipline · School safety · School violence · Threat assessment · Violence prevention

Statewide Implementation of Threat Assessment in VA K-12 Schools

School psychologists are frequently called upon to conduct threat assessments of students who have made verbal or behavioral threats against others and to recommend appropriate safety precautions or protective actions (National Association of School Psychologists School Safety and Crisis Response Committee, 2014). Threat assessment is a systematic approach to violence prevention that has gained widespread use in U.S. schools.

The story of Virginia becoming the first state to mandate threat assessment in its public schools began in 1999 when the Federal Bureau of Investigation held a conference on school shootings in Leesburg, VA (O'Toole, 2000). This conference stimulated researchers at the University of Virginia to develop a threat assessment model for K-12 schools.[1] Over the next decade, researchers accumulated a body of evidence showing the benefits of this threat assessment model for students and schools. The model was disseminated to hundreds of schools in VA and other states, laying the foundation for its recognition and acceptance as a safe and effective practice. After the shooting at Sandy Hook Elementary School in 2012, the Virginia General Assembly passed legislation mandating threat assessment teams for its K-12 public schools. This article describes this sequence of events and then summarizes research findings from a new, federally funded project designed to examine the statewide implementation of threat assessment and identify lessons learned for the benefit of other school systems and states.

The FBI's week-long conference on school violence took place just 3 months after the 1999 Columbine shooting. It assembled experts in law enforcement, education, and mental health to meet with survivors of school shootings and to consider whether a profile of the school shooter might be constructed. The FBI's profiling experts and a team of consultants examined 18 completed or foiled school shootings

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Published online: 27 July 2017

cases and found that there were some general characteristics shared by many of the youth who attacked their school, such as a history of being bullied, depression, unresolved anger, and a fascination with violence. However, none of these factors, individually or in combination, were sufficiently specific to form a reliable and accurate profile. The FBI's report concluded that "trying to draw up a catalogue or 'checklist' of warning signs to detect a potential school shooter can be shortsighted, even dangerous. Such lists, publicized by the media, can end up unfairly labeling many non-violent students as potentially dangerous …" (O'Toole, 2000, p. 2). The FBI study found that most of the student attackers communicated or leaked their intentions in some way to others prior to their attack. This meant that shootings might be prevented by investigating situations in which a student communicated a threat or engaged in some other behavior indicating preparation for an attack. This investigative process has been labeled *threat assessment* (Reddy et al., 2001).

The U.S. Secret Service and Department of Education conducted an informative and influential study of 37 school shooting cases that strongly supported the use of threat assessment (Vossekuil et al., 2002). A second report from this group (Fein et al., 2002) broadened the concept of threat assessment to include a general prevention effort aimed at establishing a positive, caring school climate that would reduce problems of peer conflict and bullying that often preceded violence. Furthermore, the report encouraged efforts to break the code of silence that often prevents students from seeking help to resolve problems or report a threat of violence.

Although school-based threat assessment was a novel concept and unfamiliar to most educators, it seemed like a promising idea. Case studies demonstrated that school shootings did not occur spontaneously and often were preceded by weeks or months of planning and preparation (O'Toole, 2000; Vossekuil et al., 2002). During this time, the majority of students who committed school shootings had communicated their violent intentions to their friends or had aroused concern by peers or school staff because of their apparent distress. Tragically, the climate of these schools did not encourage seeking help for troubled students. In other schools, shootings were averted when student threats had been investigated and found to be serious.

Development of the Virginia Student Threat Assessment Guidelines

After the FBI conference, our group at the University of Virginia decided to develop threat assessment guidelines for schools. We conceptualized threat assessment as a systematic approach to violence prevention designed to distinguish serious threats, defined as behaviors or communications in which a person poses a threat of violence, from cases in which the threat is not serious (Vossekuil et al., 2002). The term "behavioral threat assessment" is sometimes used to distinguish this process from a physical assessment of a facility's vulnerability to attack. We also adopted the view that threat assessment is not limited to assessment but should include intervention and management of threatening situations (Borum et al., 2010).

The extension of threat assessment to schools required careful consideration. Threat assessment was originally developed for use primarily by law enforcement and mental health professionals for purposes such as the protection of public officials and the prevention of workplace violence (Meloy & Hoffman, 2014). Thus, the application of threat assessment to school settings required modifications in both conceptualization and operationalization (Cornell & Allen, 2011). Unlike an ordinary workplace where a difficult employee can be fired, the business of schools is to educate youth, regardless of their attitude, motivation, or capabilities. Expulsion has drastic consequences for youth and is rarely a necessary or appropriate option (Council on School Health, 2013). In contrast to a zero tolerance approach, which applies a uniform consequence to all cases, threat assessment is a more flexible and responsive process. Threat assessment in schools is oriented toward helping students to resolve problems and conflicts that led to their threatening behavior so that they can remain in school to complete their education.

Another distinctive challenge of school-based threat assessment is that the base rate for aggression is relatively high; students frequently engage in aggressive and threatening behavior that can range from mild teasing and bantering to serious altercations (Borum et al., 2010; Nekvasil & Cornell, 2012). School authorities must be careful not to over-react to minor misbehavior, yet not overlook potentially dangerous situations. According to national surveys, approximately 20% of U.S. high school students reported being bullied, 7.8% reported being in a physical fight, and 6% reported being threatened or injured with a weapon on school property within the past 12 months (Kann et al., 2016). Approximately two thirds of public schools recorded one or more incidents of violent crime in the past year and approximately 3% of students ages 12–18 reported criminal victimization at school during the previous 6 months (Zhang et al., 2016). In addition, 10% of public school teachers reported being threatened with injury and 6% reported being physically attacked by a student (Zhang et al., 2016).

In 2002, the University of Virginia group began the development of what was later named the Virginia Student Threat Assessment Guidelines (VSTAG). With a grant from the Jessie Ball duPont Fund, the researchers convened a workgroup of school administrators, school psychologists, and law enforcement officers to discuss and debate how to deal with student threats. They drafted a set of standard procedures that were reviewed by a board of national experts in forensic psychology and risk assessment and then field-tested

in 35 schools (Cornell et al., 2004). Subsequently, these procedures were published in a 145-page manual, *Guidelines for Responding to Student Threats of Violence* (Cornell & Sheras, 2006).

Threat assessments using VSTAG are conducted by school-based multidisciplinary teams. School psychologists typically play a key role on these teams because of their expertise in the assessment of student behavior. Teams should have representatives from school administration, mental health, and law enforcement. In addition to school psychologists, school counselors, social workers, and other school staff may be part of the team. School-based teams are preferable to external teams because they have more knowledge and familiarity with the school context. Moreover, threat assessment requires a rapid assessment of the situation, and in more serious cases, extended follow-up and monitoring.

The VSTAG was designed to be flexible and efficient, so that teams could quickly resolve less serious or transient cases and devote more attention to serious, substantive cases. Teams follow a seven-step decision-making process. In brief, the first three steps of the assessment are a triage phase to determine whether the case can be quickly and easily resolved as a transient threat or will require more extensive evaluation and intervention as a substantive threat. The first step is the identification of the student's reported statement or behavior as a threat, using a broad definition that a threat is any expression of intent to harm someone, whether expressed directly to an intended target or to others, or indicated by behavior that suggests violent intentions (such as bringing a weapon to school).

The second step is an attempt to gather information about the threat. Team members usually begin by interviewing the student of concern and others with knowledge of the situation. They ask simple, non-leading questions such as asking the student of concern exactly what he/she said or did and asking witnesses what they observed. The student is also asked what he/she meant by the threatening statement or behavior and what he/she intends to do. Finally, the student is asked the reasons for his/her statement, recognizing that threatening statements are often a reaction to a conflict or problem the student could not resolve. These questions may be modified for each situation but have the general goal of understanding the student's motives and intentions.

The third step is an effort to resolve the situation as a transient threat, which does not require further protective action or development of a safety plan. Transient threats can be readily identified as expressions of anger or frustration or perhaps inappropriate attempts at humor. Frequently, the student will apologize and explain his or her behavior. The student may be reprimanded and asked to make amends for his or her behavior or receive some other disciplinary consequence, but the team is not compelled to take protective action because the threat is not serious. Most threats can be resolved with these three steps.

Any threat that cannot be readily resolved as transient is regarded as a substantive threat. A threat is considered substantive whenever it involves a sustained intent to harm someone beyond the immediate incident during which the threat was made. The *Guidelines* manual provides case examples and guidance on identifying substantive threats based on factors such as their specificity, evidence of planning or preparation, and recruitment of accomplices. The team also considers the student's age, mental status, history of behavior problems, and the overall circumstances of the threat. When a threat is considered substantive, the team will follow steps four through seven to decide on appropriate protective action to prevent the threat from being carried out. These actions may include warning the student about the consequences of carrying out the threat, providing supervision so that he or she cannot carry out the threat while at school, and contacting the student's parents so that they can assume responsibility after school. A team member also meets with the intended victim(s) of the threat, both to warn the individual(s) and to investigate what dispute or problem might have stimulated the threat.

Threat assessment is fundamentally a problem-solving approach to violence prevention because it emphasizes resolving problems and conflicts before they escalate into violence. In typical cases involving a fight, the threat assessment is concluded with steps four and five. When the threat involves a more serious act of violence, such as a shooting or stabbing, there is a more extensive assessment and development of an intervention plan.

In the most serious substantive cases, at step six the school psychologist (or another mental health professional) will conduct a mental health evaluation of the student to assess the student's mental health needs and to generate strategies for resolving the problem or conflict underlying the threat. This evaluation is not intended to make predictions of violence, but to understand why the student made the threat and identify risk and protective factors that can guide interventions. In some cases, there will be a law enforcement investigation to determine whether the student has a weapon or has engaged in criminal activity in preparation for carrying out the threat. At the final step, the team integrates findings from all available sources of information in a safety plan. The safety plan is designed both to protect potential victims and to address the relevant educational and mental health needs of the student who made the threat. The plan may include mental health and counseling recommendations, disciplinary consequences, and a decision whether the student can continue in the school or should receive services in an alternative setting.

Research Findings

Two initial field tests of VSTAG demonstrated that school-based teams could carry out threat assessments in a practical,

efficient manner without violent outcomes (Cornell et al., 2004; Strong & Cornell, 2008). Notably, none of the threats were carried out and almost all of the evaluated students were permitted to return to school. Few of the students received long-term suspensions or transfers to another school. As more VA schools adopted threat assessment, it was possible to carry out a series of controlled studies that provided further evidence of positive outcomes. Three studies found that schools using the VSTAG experienced lower suspension rates and less peer aggression/bullying compared to schools not using threat assessment or using some other approach to threat assessment (Cornell et al., 2011; Cornell et al., 2009; Nekvasil & Cornell, 2015). Two of these studies also found that their students reported greater willingness to seek help for threats of violence (Cornell et al., 2009, 2011).

A randomized controlled study of 40 schools found that students who made threats of violence in schools using the VSTAG were approximately four times more likely to receive counseling services and two-and-a-half times more likely to receive a parent conference than students in wait-list control schools (Cornell et al., 2012). In contrast, students in the control group were three times more likely to receive a long-term suspension and eight times more likely to be transferred to a different school.

There is some evidence that the adoption of threat assessment has had a more general influence on school discipline practices and leads to a reduction in the use of school suspension (Cornell et al., 2011; Cornell & Lovegrove, 2015). A statewide analysis found that suspension rates were lower in secondary schools using the VSTAG, and that there were greater reductions in schools that had used threat assessment for more years (Cornell & Lovegrove 2015; Just Children & Cornell 2013). Especially promising was that suspension rates were lower for both White and Black students and the lower rate for Black students substantially reduced the racial disparity in long-term suspensions.

In 2013, the VSTAG became the first form of threat assessment recognized as an evidence-based practice in the National Registry of Evidence-based Programs and Practices (NREPP n.d.). This was an important achievement because the use of evidence-based practices has become a standard throughout the fields of education and mental health (Cooper et al., 2009). The federal government has increasingly mandated the use of evidence-based practices in its funding programs (Weiss et al. 2008).

VA Threat Assessment Law

The 2007 shooting at Virginia Polytechnic Institute and State University (Virginia Tech) generated intense public concern about the safety of college campuses. In its investigation of the shooting, one recommendation of the Governor's Review Panel (2007) was that Virginia Tech and other state institutions of higher education should have a threat assessment team. This recommendation was passed into law by the Virginia General Assembly (Virginia Tech Review Panel, 2007). Because of our previous work in K-12 education, our group at the University of Virginia contributed to a statewide training program for Virginia colleges and universities and then created a guidebook of recommended practices (Cornell, 2009). This precedent in higher education supported the legislative mandate for K-12 schools 6 years later.

The 2012 shooting at Sandy Hook Elementary triggered another wave of public concern about the safety of VA schools. At the recommendation of a state task force on school and campus safety, Virginia (2013) enacted legislation expanding the use of threat assessment teams to all K-12 public schools. The legislation directed school boards to adopt policies for the establishment of threat assessment teams and the directed the state's Department of Criminal Justice Services, which houses the Virginia Center for School and Campus Safety, to provide schools with a model policy[2] for the establishment of threat assessment teams. This landmark legislation mobilized VA schools to take preventive action and provide services for thousands of troubled students and represents a model for other states, school systems, or other organizations considering the implementation of threat assessment.

Virginia's Department of Criminal Justice Services has facilitated the implementation of statewide threat assessment in multiple ways. The Virginia Center for School and Campus Safety has sponsored dozens of free regional workshops for threat assessment teams throughout the state. The Center created training materials and an educational video for schools and offered an 8-h course on the Family Educational Rights and Privacy Act (FERPA) and other legal issues related to threat assessment. The Center also provided consultation services to assist school divisions in case management.

Like many new legislative actions, there have been adjustments and refinements to the law after it was put into practice. In 2016, the statute was amended from a requirement to evaluate "students" to "individuals" in recognition that non-students, such as former students, schools staff, or parents can pose a danger to the school, too. Furthermore, threat assessments might be needed for persons indirectly connected to the school such as persons in relationships with students, school staff, or parents. Cases of domestic violence that spill onto school property are a potential concern. This broadening of focus requires some change in team practices. School teams may have less opportunity for assessment and intervention when a threat is made by someone who is not a student, and

[2] VA law does not prescribe a specific model of threat assessment but requires that any model be consistent with the model policies developed by the Virginia Center for School and Campus Safety. The Virginia Student Threat Assessment Guidelines developed at the University of Virginia is recognized in the model policies document as one such model.

they must consider a range of different management strategies. For example, law enforcement may play a more prominent role in the threat assessment of adults and court-ordered actions ranging from protective orders to civil commitment for psychiatric evaluation might be considered.

The legislation was also modified to give the team access to previously restricted information, when it involves an individual who has been determined to pose a threat of violence (Virginia 2008). An individual's criminal history and health records can be obtained but can only be used for threat assessment purposes, and these records cannot be shared with persons outside the team.

One aspect of the legislation that has raised questions is that the statute directs teams to assess students who pose a "threat of violence or physical harm to self or others" (Virginia, 2013). This language has been interpreted by some to mean that threat assessment teams should assume responsibility for the assessment of students who are suicidal as well as for students who may not be suicidal but engage in self-injurious behavior. Schools typically have established procedures for suicide and self-injury assessment, and these may be conducted by school staff who are not necessarily threat assessment team members. The inclusion of these cases for review by the threat assessment team complicates the process and alters the confidentiality usually afforded students (and their parents) being seen for suicide counseling. For example, some school authorities might interpret this law to mean that every case in which a student threatened suicide or self-injury should be reviewed by the school's threat assessment team.

The assessment and management of suicidal and self-injurious behavior differ substantially from the assessment and management of threats to harm others, with relatively few overlapping cases. An analysis of statewide VA threat assessment data indicates that approximately 52% of cases involved threats to harm others, 44% involved threats to harm self, and only 4% involved threats to harm both self and others (Cornell et al., 2016). In light of the qualitatively different practices for helping persons who threaten to harm themselves versus persons who threaten others, and the low overlap in cases, it would be useful to clarify the legislation in this area. The practice of threat assessment could be more clearly linked to persons who threaten to harm others and distinguished from suicide assessment, while maintaining a provision that the small proportion of persons who threaten both self and others would receive both services in a coordinated manner.

Research on Statewide Implementation

In 2014, our research team at the University of Virginia received a grant from the U.S. Department of Justice under the Comprehensive School Safety Initiative to evaluate and improve the implementation of threat assessment in VA's K-12 public schools. The overarching purpose of this project is to advance the practice of student threat assessment as an innovative school safety strategy. Two primary goals of the project are to determine: (1) how student threat assessment is being implemented in statewide practice and (2) how additional training might improve implementation.

Statewide Case Findings Two years after the requirement went into effect, the Virginia Department of Criminal Justice Services asked schools to report on their threat assessment cases as part of the state's annual school safety audit. Administrators from all 1746 elementary, middle, and high schools in VA reported detailed case information (e.g., demographics of the student making the threat, threat target, threat nature, threat seriousness, case management/discipline responses, whether the threat was attempted) for a sample of their cases.

Findings from the 2014–15 academic year, the second year after the mandate was enacted, indicated a total of 1082 VA schools reported 5586 student-related threats to harm others (2952), self (2420), or both (220). Unexpectedly, 876 schools (45%) reported no threat cases (Cornell et al., 2016). The absence of threat cases might indicate a relatively low level of aggressive behavior in the school or perhaps more likely, an absence of threat reporting. It is also possible that some schools failed to initiate a response to a reported threat, but all schools reported the existence of threat assessment teams. The functioning of these teams may vary considerably and some schools may need assistance in making their teams more active and effective.

We completed an analysis of 1865 cases involving a threat to harm others from 785 schools (Cornell et al. 2017a; Maeng et al. 2017). The threat cases in this statewide sample had some typical characteristics, consistent with prior studies (Cornell et al., 2004; Strong & Cornell, 2008). The highest frequencies of threats were made by students in grades 4 through 9. Male students and students receiving special education services were disproportionately represented in the sample relative to the statewide enrollment. Approximately 70% of threats were made toward another student rather than an adult. Unspecified threats to harm were more common than threats to kill or hit or fight.

A principle of threat assessment is that the most effective way to prevent violence is to address the problem that underlies the threat. Consistent with this perspective, there was a high rate of referral for student services and a relatively low rate of severe consequences for making a threat (Cornell et al., 2016). In this sample, 58% of students were referred for counseling, mental health evaluation/services, or special education evaluation/services. Fewer than half of the threats resulted in out-of-school suspension, and only 1% of students were expelled.

A critical issue is whether threat assessments led to different disciplinary or legal actions for minority students than

White students. Nationwide and in VA, Black students are suspended at much higher rates than White students (U.S. Department of Education, Office for Civil Rights, 2016). However, an analysis of disciplinary and legal outcomes for students receiving a threat assessment revealed no statistically significant differences among Black, Hispanic, and White students in out-of-school suspensions, school transfers, or legal actions (Cornell et al. 2017b). These findings suggest that threat assessment teams did not exhibit racial or ethnic biases in their decisions about these students. The most consistent predictors of disciplinary consequences were the student's possession of a weapon and the team classification of the threat as serious. More study is needed to understand how the team process led to outcomes that did not reflect the racial disparities observed in school discipline generally in VA schools and schools nationwide. One interpretation of these findings is that the threat assessment process helps school authorities to focus on the meaning and intent of the student's behavior and to make decisions based on the seriousness of the student's behavior that are independent of race or ethnicity.

Very few of the threats resulted in violent acts. Across all cases, only 1% of threats were carried out; all involved fighting or assault and there were no serious injuries (Cornell et al. 2016, 2017a). Although there is no control group of schools not using threat assessment (since the state mandates threat assessment teams in all schools), the low level of completed threats seems to be a positive outcome.

A key stage in threat assessment is the determination whether a threat is serious or not serious. Because different models of threat assessment categorize threats in different ways, we combined categories into two basic groups: threats regarded as not serious (transient or low level) versus all other categories (Maeng et al., 2017). By this categorization, the teams determined that approximately two thirds of threats were not serious. Consistent with this distinction, a logistic regression determined that serious threats were much more likely than non-serious cases to received disciplinary consequences such as out-of-school suspension and legal consequences such as arrest or incarceration (Cornell et al. 2017b). Although few threats were carried out, serious threats were ten times more likely to be carried out than non-serious threats.

Training Needs The state provided a series of free regional workshops for threat assessment teams in the first 2 years after the new law and has continued to provide regular ongoing training. Schools need training to improve their understanding of violence prevention strategies and to prepare new team members after staff turnover. School administrators and threat assessment team members were surveyed about their training needs through the state's School Safety Audit Survey and a sample of telephone interviews (Cornell et al., 2016). Two key training needs were identified: general education about threat assessment for the larger school community and case management training for team members.

School authorities voiced a need to educate the larger school community of students, parents, and school staff about threat assessment. Threat assessment cannot prevent violence if community members do not understand the need to report threats. One section of the VA law threat assessment mandate (Virginia, 2013, § 22.1–79.4) states that teams should provide guidance to students and staff on how to recognize and report threats at their schools. However, 2 years after the law went into effect, a school climate survey found that the majority of secondary school teachers reported that they did not know whether their school had formal threat assessment guidelines (Cornell et al., 2016).

In order to help school authorities educate their communities about threat assessment, we created an online educational program to inform students, parents, teachers, and other school staff about the threat assessment process and the need to report threats. The program consists of a narrated slide presentation about the state requirement for threat assessment and the rationale for this approach, with briefer versions for parents and students. A short video presents a scenario in which a student learned that one of his peers was planning to shoot someone at school. Although initially hesitant to report the threat, he confides in one of his friends who convinces him to report it to a school administrator. A series of pre-post questions found that participants responded positively to the program and made substantial gains in their knowledge and support of threat assessment (Stohlman & Cornell, 2017).

To help threat assessment teams with case management decisions, we created two additional educational programs specifically for team members. These programs contain a series of video vignettes illustrating two difficult issues for teams. One is the distinction between the seriousness of a student's threat from the seriousness of the disciplinary infraction. In reviewing case narratives and conducting training sessions, we observed that school teams sometimes blur the distinction between threat assessment and discipline and classify a threat as serious because it is represents a disciplinary violation. The typical example is a false bomb threat, which is a serious disciplinary and legal violation; although it can be a disruptive and frightening action, it does not pose a serious danger of physical injury to others.

The program also emphasized the need to seek alternatives to school suspension. Threat assessment represents an alternative to zero tolerance discipline, which has been widely criticized as ineffective and counter-productive (American Psychological Association Zero Tolerance Task Force, 2008; Morgan et al., 2014). Unlike a zero tolerance approach, threat assessment considers the contextual factors present when assessing whether a student poses a risk of violence and responds with case management, including disciplinary actions,

designed to address the underlying problem that motivated the threat.

A second difficult issue for teams is deciding appropriate case management steps after the initial protective actions have been taken. For example, school psychologists have reported being asked to conduct time-consuming assessments of students whose behavior clearly did not pose a serious threat. The educational program presents cases in which a student exhibits symptoms of serious emotional disturbance or depression that should be investigated. The program also presents cases of persistent peer conflict, bullying, or harassment that warrant follow-up interventions and monitoring.

Implications for School Psychology Practice

Threat assessment is conceptualized as a multidisciplinary team process, and therefore, we do not recommend that school psychologists be delegated with carrying out threat assessments by themselves. However, school psychologists can and should play a central role in the threat assessment and management process. School authorities naturally turn to school psychologists when there are questions about a student's potential for violence. However, school authorities may have misconceptions about violence prevention and what school psychologists can reasonably determine about a student's future behavior. School psychologists can help school authorities to understand that threat assessment is not a process for predicting violence but for preventing violence, and that violence prevention does not require prediction. In the public health domain, many hazards, ranging from motor vehicle accidents to skin cancer, can be prevented even though individual cases cannot be predicted. Violence is a hazard that can be prevented even if it often cannot be predicted.

The threat assessment process is concerned with understanding why a student has engaged in some form of threatening behavior and then identifying appropriate interventions that reduce the risk of violence. An assessment may find that a student is frustrated and angry but responsive to counseling. There may be an interpersonal conflict or misunderstanding that is amenable to mediation. In other cases, a student may be experiencing serious mental health problems that demand treatment. No two cases are the same, although there are some typical kinds of cases that can help teams formulate safety plans (Cornell & Sheras, 2006).

The threat assessment process is concerned with avoiding two types of errors. On the one hand, school psychologists and their teams do not want to over-react to student behavior that in the majority of cases does not pose a serious risk of violence, and on the other hand, they do not want to under-react to the smaller number of cases where a student is planning or preparing to carry out a violent act. School psychologists help their teams to understand that there is no profile or formula for threat assessment; teams must make decisions based on a process of gathering information and considering the circumstances of each case. They should not make decisions based on zero tolerance rules that fail to consider the meaning and intent of the student's behavior.

Threat assessment does not stop with assessment but always leads to interventions and then evaluation of the student's response to those interventions. School psychologists can help the team to function effectively by understanding how the process works, sharing information, and helping team members to work in coordination. It is important to recognize that a comprehensive threat assessment is not needed in all cases and that there should be a graduated process based on the seriousness of the threat and the student's response to initial interventions. If comprehensive threat assessments are used excessively, they will be too burdensome and schools will not use them.

Conclusion

In summary, the process leading to the statewide implementation of threat assessment in VA schools began in 1999 with an FBI conference on school shootings that inspired the development of threat assessment guidelines at the University of Virginia. These guidelines evolved into a formal threat assessment model, the VSTAG, that was widely disseminated in VA schools. A series of controlled studies demonstrated the benefits of this approach and formed the basis for its recognition as an evidence-based program.

School shootings at Virginia Tech in 2007 and Sandy Hook Elementary in 2012 stimulated the state legislature to mandate the use of threat assessment teams first in higher education and subsequently in K-12 schools. The law has been revised to extend threat assessment from students to all persons who threaten violence and teams have been authorized to gain access to criminal history and health records. However, it seems questionable to include all suicide threats in the threat assessment process, since there is so little overlap in cases and important differences in the kinds of interventions needed to prevent a violent outcome.

After 2 years, all K-12 schools reported threat assessment teams, and a sample of cases demonstrated that schools are resolving threats with few violent incidents. Most of the students were referred for mental health services, fewer than half were suspended and approximately 1% were expelled. An especially encouraging finding is that there were no racial/ethnic differences in disciplinary and legal outcomes. However, there is a need for ongoing training to help teams make good judgments in difficult cases and to prepare new team members. Threat assessment teams do not appear to be functioning with similar levels of engagement. Finally, threat assessment requires ongoing training to educate students,

parents, and staff so that they understand and cooperate with this innovative approach to violence prevention.

Acknowledgments We thank members of our research team including Anna Grace Burnette, Pooja Datta, Frances Huang, Yuane Jia, Timothy Konold, Patrick Meyer, and Shelby Stohlman. The project was conducted in cooperation with the Virginia Department of Criminal Justice Services.

Compliance with Ethical Standards This study was funded by Grant No. NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Virginia Department of Criminal Justice Services. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The principal author of this report (Cornell) is the primary developer of the Virginia Student Threat Assessment Guidelines (VSTAG), one of the threat assessment models used in VA schools.

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School Psychology Quarterly
2018, Vol. 33, No. 2, 213–222

1045-3830/18/$12.00 http://dx.doi.org/10.1037/spq0000220

Student Threat Assessment as a Standard School Safety Practice: Results From a Statewide Implementation Study

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Threat assessment has been widely endorsed as a school safety practice, but there is little research on its implementation. In 2013, Virginia became the first state to mandate student threat assessment in its public schools. The purpose of this study was to examine the statewide implementation of threat assessment and to identify how threat assessment teams distinguish serious from nonserious threats. The sample consisted of 1,865 threat assessment cases reported by 785 elementary, middle, and high schools. Students ranged from pre-K to Grade 12, including 74.4% male, 34.6% receiving special education services, 51.2% White, 30.2% Black, 6.8% Hispanic, and 2.7% Asian. Survey data were collected from school-based teams to measure student demographics, threat characteristics, and assessment results. Logistic regression indicated that threat assessment teams were more likely to identify a threat as serious if it was made by a student above the elementary grades (odds ratio 0.57; 95% lower and upper bound 0.42–0.78), a student receiving special education services (1.27; 1.00–1.60), involved battery (1.61; 1.20–2.15), homicide (1.40; 1.07–1.82), or weapon possession (4.41; 2.80–6.96), or targeted an administrator (3.55; 1.73–7.30). Student race and gender were not significantly associated with a serious threat determination. The odds ratio that a student would attempt to carry out a threat classified as serious was 12.48 (5.15–30.22). These results provide new information on the nature and prevalence of threats in schools using threat assessment that can guide further work to develop this emerging school safety practice.

Impact and Implications

Virginia public schools are using threat assessment teams to prevent student violence. Based on a sample of 1,865 threat cases, this study found that teams were more likely to identify a threat as serious if the student was above the elementary grades and receiving special education services, if the threat involved battery, homicide, or weapon possession, or targeted an administrator. Although few threats were attempted, a threat judged to be serious was about 12 times more likely to be attempted than a threat not judged to be serious.

Keywords: school safety, threat assessment, school violence, serious and nonserious threats

In response to a series of school shootings in the 1990s, federal law enforcement and education authorities recommended that schools adopt a threat assessment approach to violence prevention (Fein et al., 2002; O'Toole, 2000). Over the next 15 years, many schools began to implement threat assessment programs (Cornell, Sheras, Gregory, & Fan, 2009; Van Dreal, 2011; Van Dyke & Schroeder, 2006). Reports from the U.S. Department of Education (2013), the American Psychological Association (2013), and the National Association of School Psychologists (National Association of School Psychologists School Safety and Crisis Response

This article was published Online First August 17, 2017.

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This project was supported by Grant NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice, and conducted in collaboration with the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services. DC is the principal developer of the Virginia Student Threat Assessment Guidelines.

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Committee, 2014) recommended its use in schools. In 2015, the Sandy Hook Promise Foundation (2017) adopted threat assessment as one of its core violence prevention programs for national dissemination. However, there is little available information on this widespread school safety practice. The purpose of this study is to report on the statewide implementation of threat assessment in Virginia public schools and, in particular, how schools were able to distinguish serious from nonserious threats of violence by students.

Although threat assessment was originally developed as a law enforcement strategy to protect public figures, it has been widely applied to the prevention of workplace violence, terrorism, and domestic violence (Meloy & Hoffmann, 2014). Threat assessment is a systematic approach to violence prevention designed to distinguish serious threats, defined as behaviors or communications in which a person poses a threat of violence, from cases in which the threat is not serious (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). Unlike a zero tolerance approach that applies a uniform consequence to all cases, threat assessment is a more flexible and responsive process. The goal of threat assessment is to prevent violence by planning a response to serious threats that considers the unique risk and protective factors associated with the circumstances of the case. Nonserious threats may be recognized as signs of frustration, unresolved conflict, or disputes that might be amenable to resolution.

Threat assessment is an especially appropriate strategy for schools because students frequently engage in aggressive and threatening behavior that ranges on a wide continuum from mild teasing and bantering to serious altercations, and in rare instances, severe acts of criminal violence (Borum, Cornell, Modzeleski, & Jimerson, 2010: Cornell, 2014). Youth Risk Behavior Survey results indicate approximately 20% of U.S. high school students reported being bullied, 7.8% reported being in a physical fight, and 6% reported being threatened or injured with a weapon on school property within the past 12 months (Kann et al., 2016). According to national statistics, 65% of public schools recorded one or more incidents of violent crime in the past year and approximately 3% of students ages 12–18 reported criminal victimization at school during the previous 6 months (Zhang, Musu-Gillette, & Oudekerk, 2016). In addition, 10% of public school teachers reported being threatened with injury and 6% reported being physically attacked by a student (Zhang et al., 2016).

Although threatening remarks or behaviors by students can raise strong concern, educators want to avoid overreacting to threats that are not serious (Cornell & Sheras, 2006; O'Toole, 2000). The frequency of threatening statements in student communications may be high. For example, a survey of high school students asked, "Has another student threatened to harm you in the past 30 days?" (Nekvasil & Cornell, 2012). Approximately 12% of students reported being threatened, but only 23% of the threatened students regarded the threat as serious and only 9% reported that the threat was carried out. When threats are reported to school authorities, the challenge is to determine whether or not a threat is serious and what appropriate action to take.

Studies of Threat Assessment in Schools

There are few empirical studies of school-based threat assessment. One of the first reports concerned the Dallas Threat of Violence Risk Assessment, which is a structured approach that relies on scoring a checklist of 19 risk factors for violence. Each item is rated as low (1), medium (2), or high (3), then summed into a total risk score and divided by three. Scores below 9 are considered low risk and scores above 14 are considered high risk (Van Dyke & Schroeder, 2006). A summary of results for 639 cases collected during 2003–2004 found that 63% were classified as low risk, 34% medium risk, and 3% high risk. The overwhelming majority (85%) of cases were male students, approximately three-fourths (73%) were in elementary school, and one-fifth (20%) were receiving special education services.

The Virginia Student Threat Assessment Guidelines (VSTAG) was developed at the University of Virginia to integrate recommendations from Federal Bureau of Investigation (FBI) and Secret Service studies of school shootings (Fein et al., 2002; O'Toole, 2000) with field-test experiences gained from work with a group of public schools (Cornell & Sheras, 2006). Under this model, a multidisciplinary team uses a step-by-step procedure to gather information, assess the seriousness of a threat, and take appropriate action (such as referring a student for counseling or seeking law enforcement intervention).

A series of controlled studies have found that schools using this model experience lower rates of peer aggression, more favorable student and teacher perceptions of school climate, and lower use of out-of-school suspension (Cornell, Allen, & Fan, 2012; Cornell, Gregory, & Fan, 2011; Cornell et al., 2009; Nekvasil & Cornell, 2015). For example, a retrospective comparison found students in high schools using this model reported less bullying, greater willingness to seek help for bullying and threats of violence, and fewer long-term suspensions (Cornell et al., 2009). A quasi-experimental study found that in the 23 high schools adopting this model long term suspensions and bullying infractions decreased approximately 50% compared with the 26 control group schools (Cornell et al., 2011). A retrospective, quasi-experimental study compared 166 middle schools that used the VSTAG model to 166 schools that did not use threat assessment or that used another model of threat assessment (Nekvasil & Cornell, 2015). Students in schools using the VSTAG model reported lower student aggressive behavior and perceived discipline to be fairer. Finally, a randomized control trial of 201 K-12 students identified as making threats of violence found that students in schools using the VSTAG model were less likely to receive exclusionary discipline than students in the control group (Cornell et al., 2012). As a result of these studies, the VSTAG model was included in the *National Registry of Evidence-based Programs and Practices* (National Registry of Evidence-based Programs and Practices; n.d.).

Two studies using the VSTAG model have evaluated the distinction between transient and substantive classifications (Burnette, Datta, & Cornell, 2017; Cornell et al., 2004). Cornell and colleagues (2004) found that of 188 threat cases in 35 schools, the majority of cases (70%) were classified as transient and the remaining cases were determined to be substantive. The proportion of substantive threats was much higher among middle and high school students compared with elementary students. In addition, male students made the majority of both transient and substantive threats. The second study evaluated 844 threat cases in 339 schools and found that threats were more likely to be classified as substantive when made by older students and male students (Burnette et al., 2017). In this study, the odds that substantive threats were

attempted were 36 times greater than that a transient threat would be attempted. However, these studies have not investigated the characteristics distinguishing serious from nonserious threats across threat classification models.

Current Study

In response to the 2012 Sandy Hook shooting, Virginia became the first state to mandate the use of threat assessment teams in its K-12 public schools (*Code of Virginia*, § 9.1–184.A.10). The law authorized the state's Department of Criminal Justice Services to collect data on threat cases as part of the state's annual school safety audit (*Code of Virginia*, § 22.1–79.4). Survey questions were developed and piloted in the first school year after the law went into effect. However, it was recognized that some schools might not have been fully prepared in the first year; consequently, the present study examined data from the second school year (2014–2015), when all schools would have had more than one year to establish their threat assessment teams. Thus, the purpose of the present study was to examine threat assessment in a large, statewide sample of schools and learn how schools distinguished serious from nonserious threat cases.

The present study investigated three research questions. The first question was "What are the demographic characteristics of students who threatened violence?" Based on previous studies, we expected that a disproportionate number of cases would involve students who were male (e.g., Losen, Hodson, Keith, Morrison, & Belway, 2015; Skiba, Michael, Nardo, & Peterson, 2002; Strong & Cornell, 2008), in elementary grades (e.g., Cornell et al., 2012; Strong & Cornell, 2008), and receiving special education services (e.g., Kaplan & Cornell, 2005; Strong & Cornell, 2008). We also investigated the racial/ethnic composition of the sample because of the disproportionately high rate of minority student referrals for disciplinary infractions in Virginia and nationwide (e.g., Losen et al., 2015; Rocque, 2010; Skiba et al., 2002, 2011).

The second research question was, "What student and case characteristics are associated with the team's determination that a threat was serious?" It was hypothesized that threat assessment teams would regard a threat as more serious if it was made by an older student and if it involved a threat to kill and involved possession of a weapon. It was expected that teams would be more concerned about threats reported to third parties rather than directly to the intended target because the threat assessment literature indicates that school shooters were more likely to have made indirect rather than direct threats toward their intended target (Vossekuil et al., 2002). Finally, it was anticipated that teams would be more concerned about threats aimed at adults, such as teachers and administrators, rather than students. Student-to-student threats are much more common than student threats against school staff, which are regarded as serious disciplinary infractions (Virginia Department of Education, 2016).

The third research question was, "What student and case characteristics are associated with a threat that a student attempted to carry out?" Previous studies indicate that relatively few threats are attempted (Cornell et al., 2012, 2004; Strong & Cornell, 2008), but it was expected that attempted threats should have characteristics associated with a serious threat.

When the threat assessment law was enacted, many Virginia schools were already using threat assessment, having been trained in the use of the VSTAG (Cornell & Sheras, 2006). The state law did not mandate the use of a specific threat assessment model, and instead directed the state's Department of Criminal Justice Services (2016, p. 1) to provide schools with a "model policy for the establishment of threat assessment teams, including procedures for the assessment of and intervention with students whose behavior poses a threat to the safety of school staff or students." The general guidance provided in the model policy explicitly recognized the VSTAG as meeting state requirements, but allowed schools to adopt or develop any model that met the general language of the state law. The guidance document presented general principles of threat assessment that originated with the U.S. Secret Service and U.S. Department of Education (Vossekuil et al., 2002) and are widely used in threat assessment models, including the VSTAG. Also consistent with general threat assessment practices, the state guidance required schools to use a multidisciplinary team, to assess the seriousness of student threats, and to take appropriate actions to prevent violence in serious cases. Hence, the present study is not an examination of a specific model of threat assessment, but is concerned with the results for a statewide sample of schools using varied threat assessment practices.

Method

Sample

The sample was obtained from a school safety survey completed at the end of the 2014–2015 school year by 1,746 administrators in the state's 1,098 elementary, 337 middle, and 311 high schools. Schools that reported at least one case of a student threat to harm were asked to provide detailed information about each case. There were 922 schools reporting no cases, 689 reporting 1–5 cases, and 135 reporting more than five cases. To limit the reporting burden, schools with more than five cases were asked to report on their most serious case, least serious case, and three most recent cases. Of the 824 schools reporting at least one case of a student threat, 39 reported cases involving a threat of suicide or self-injury, but no case involving a student threat to harm someone else; consequently, the sample was reduced to 785 schools reporting cases of a student threatening to harm someone other than self.

The analytic sample included 785 schools (405 elementary, 197 middle, and 183 high) that reported 1,865 cases of threats to harm others (representing an average of 2.4 reported threats per school). The schools were distributed across urban (165), suburban (325), and rural/small town (295) settings. School enrollments ranged from 76 to 2,926 ($M = 818.7$, $SD = 480$). The demographics for these 785 schools were 51.4% male with a racial/ethnic distribution of 50.6% White, 22.6% Black, 15.0% Hispanic, 6.5% Asian, and 5.4% Other (e.g., two or more races, Native American, Pacific Islander). Approximately 39.3% of the students were free or reduced price meal (FRPM)-eligible and 12.4% of the students received special education services.

Measures

The survey was administered by the Virginia Department of Criminal Justice Services as part of the state's mandated reporting process. The survey collected student gender, race/ethnicity, special education status, and grade level for each case. In addition, the

survey obtained ratings for a series of threat characteristics. Because threats varied so widely in what the student threatened to do, we selected three threat characteristics that seemed especially relevant and amenable to coding. Each case was rated for the presence (1) or absence (0) of the following characteristics: (a) threat of battery; (b) threat to kill; and (c) threat involved use of a weapon (either student had possession of a weapon or had a weapon on school property). The target(s) of the threat was identified as another student, faculty member, staff member, administrator, or someone else. Threats were classified as communicated directly to the target, indirectly to a third party, or implicitly expressed (behavior that raised concern without a communicated threat).

The survey asked how the teams classified the seriousness of their threat cases. Because schools used different classification systems with varying numbers of categories, cases classified under various systems as substantive, medium, high, severe, serious, or imminent were combined into a "serious" category and cases classified as transient or low were classified as "not serious." We elected to use two broad categories because this seemed to be the most feasible way to combine data across schools using different systems and because the distinction between a threat considered serious and one considered not serious seemed to have the most practical value. One study has demonstrated coder reliability for the three-category system used in the Virginia Student Threat Assessment Guidelines (Burnette et al., 2017), but we are not aware of reliability for any of the other coding systems. In addition to classification, the survey asked whether the student attempted or did not attempt to carry out the threat.

This study was conducted in compliance with the University of Virginia Institutional Review Board. Surveys were collected by the state agency without student identifying information. Data were provided to the researchers in archival form.

Data Analysis

To investigate the first research question, the sample was compared with the state fall enrollment database, which reports demographic characteristics (e.g., school size, number of students by race/ethnicity) for each school. Chi-square tests evaluated whether the gender and special education status of students referred for threat assessment differed from the overall school enrollment of the schools contributing cases to the study. For race/ethnicity, risk ratios were calculated as the proportion of students of a particular demographic (i.e., Black, Hispanic, and Asian) referred for threat assessment across all schools in the sample divided by the proportion of White students referred for threat assessment across all schools in the sample. This allowed for comparison of Black, Hispanic, and Asian students with White students as the reference group.

To investigate the second research question, logistic regression tested the associations between case characteristics and the school threat assessment team's determination of threat seriousness. To assess the third research question, logistic regression tested the association between case characteristics and whether the threat was attempted. In this analysis, the team's assessment of the threat as serious was included as an additional case characteristic. The analyses were conducted using clustered adjusted standard errors using the type = complex option in Mplus to account for the nesting of cases within schools, with full information maximum likelihood (FIML) estimation to accommodate missing data.

Results

Research Question 1: What Are the Characteristics of Students Who Threatened Violence?

In the 1,865 cases, students were most often in elementary grades (46.1%) with a clear increase across the youngest grades and decreasing in the high school grades. The greatest number of threats (11.0%) were made by 4th graders, followed by 5th graders (10.9%; Figure 1). (In 10 cases, the student's grade was not reported.)

The 785 schools in the sample enrolled 641,858 students. Of these, 330,065 (51.4%) were male students; however, male

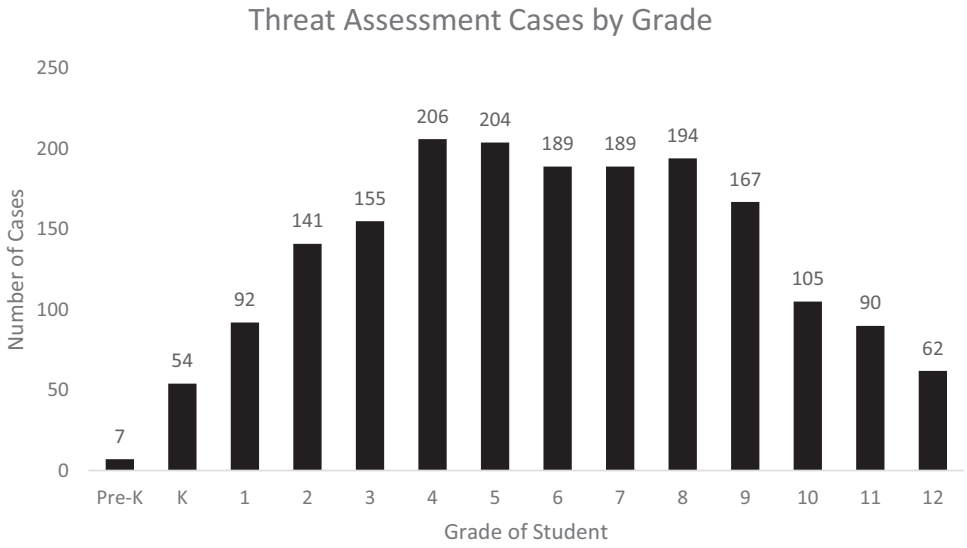

Figure 1. Grade breakdown of threat cases in sample.

students made up 74.4% of the students referred for threat assessment, $\chi^2(1) = 553.8$, $p < .001$. Based on a risk ratio, male students were 3.7 times more likely (.42/.11) to receive a threat assessment than female students. Students receiving special education services made up approximately 12.4% of the sample student population ($n = 79{,}337$), but accounted for 34.6% of the threat cases, $\chi^2(1) = 900.7$, $p < .001$. Students receiving special education services were 3.9 times more likely to be referred the for threat assessment than those not receiving special education services.

More White students (51.2%) were referred for threat assessment than Black (30.2%), Hispanic (6.8%), and Asian (2.7%) students (see Table 1). The proportion of Black students referred for threat assessment was 1.3 times higher than the proportion of White students, $\chi^2(1) = 82.7$, $p < .001$. The Hispanic-White risk ratio was 0.45, $\chi^2(1) = 75.5$, $p < .001$ and the Asian-White risk ratio was 0.41, $\chi^2(1) = 40.0$, $p < .001$.

Research Question 2: What Student and Case Characteristics Are Associated With the Team's Determination That a Threat Was Serious?

Across all cases (see Table 2), the most common threats made by students were threats of homicide (22.5%) followed by threats of battery (18.2%). There were 101 cases (5.4%) in which a student had a weapon in their possession or on school property at the time of the threat. Only 30.5% of cases were determined to be serious by the threat assessment team.

Logistic regression analysis was used to identify characteristics of serious threats, taking into consideration the nesting of cases within schools as previously described. Serious threats were more likely to involve possession of a weapon (Odds ratio [*OR*] = 4.41, $p < .001$), target an administrator ($OR = 3.55$, $p < .01$), threat of battery ($OR = 1.61$, $p < .01$), threat of homicide ($OR = 1.40$, $p < .05$), or involve a student identified as receiving special education services ($OR = 1.27$, $p < .05$; Table 3). Serious threats were less likely to involve elementary ($OR = 0.57$, $p < .001$) than middle school students.

Table 1
School and Case Demographics and Prevalence Rates

Characteristic	School level (n = 641,858)	Case level[a] (n = 1,865)	Prevalence rate
Male	330,065 (51.4%)	1388 (74.4%)	.42
Female	311,793 (48.6%)	355 (19.0%)	.11
SPED identified	79,377 (12.4%)	645 (34.6%)	.81
Non-SPED	562,481 (87.6%)	1162 (62.3%)	.21
Race			
White	324,867 (50.6%)	954 (51.2%)	.29
Black	144,999 (22.6%)	563 (30.2%)	.39
Hispanic	96,234 (15.0%)	127 (6.8%)	.13
Asian	41,400 (6.2%)	50 (2.7%)	.12

[a] Gender not reported for 122 cases, special education (SPED) status not reported for 58 cases, race not reported for 47 cases.

Table 2
Threat Case Descriptive Statistics

Characteristic	Nonserious (n = 1,309)	Serious (n = 552)	Total cases[a] (n = 1,865)
School type			
Elementary	669 (51.1%)	194 (35.1%)	863 (46.3%)
Middle	378 (28.9%)	191 (34.6%)	573 (30.7%)
High	262 (20.0%)	167 (30.3%)	429 (23.0%)
Threat type			
Battery	211 (16.1%)	128 (23.2%)	339 (18.2%)
Homicide	286 (21.8%)	133 (24.1%)	420 (22.5%)
Weapon in possession	46 (3.5%)	54 (9.8%)	101 (5.4%)
Communication method[b]			
Direct	777 (59.4%)	323 (58.5%)	1,102 (59.1%)
Indirect	339 (25.9%)	157 (28.4%)	496 (26.6%)
Implicit	190 (14.5%)	72 (13.0%)	264 (14.2%)
Target			
Student	914 (69.8%)	355 (64.3%)	1,272 (68.2%)
Faculty	182 (13.9%)	87 (15.8%)	270 (14.5%)
Staff	38 (2.9%)	42 (7.6%)	80 (4.3%)
Administrator	23 (1.8%)	41 (7.4%)	64 (3.4%)
Multiple targets	37 (2.8%)	42 (7.6%)	80 (4.3%)
Attempted	11 (.8%)	50 (9.1%)	62 (3.3%)

Note. Column percentages may exceed 100% because multiple categories could be selected.
[a] Seriousness was not indicated for four cases. [b] Communication method not indicated in three cases.

Research Question 3: What Student and Case Characteristics Are Associated With a Threat That a Student Attempted to Carry Out?

Schools reported that students attempted to carry out their threat in only 3.3% ($n = 62$) of cases. Logistic regression analysis, taking into consideration the nesting of cases within schools, indicated that attempted threats were more likely to have been categorized as serious by the team ($OR = 12.48$, $p < .001$) and involve a threat of battery ($OR = 3.33$, $p < .001$). Attempted threats were less likely to involve homicide ($OR = 0.22$, $p < .05$) and to be communicated indirectly ($OR = 0.06$, $p < .001$; Table 3).

The classification of threats as serious was of special interest since it represents the culmination of the team's assessment. The attempt rate for serious threats was 9.1% (50 of 552 cases) whereas the attempt rate for nonserious threats was 0.8% (11 of 1309 cases). Thus the odds that a threat classified as serious would be attempted were approximately 12.5 times greater than those classified as not serious.

One potential concern is that the selection of five cases from each school might have biased the sample in some way (i.e., the schools that reported five case might differ from schools that reported fewer than five cases in school demographics). Regression results using schools that had five or fewer cases were compared with regression results using only those schools that reported five cases and results were comparable. Moreover, independent sample t tests indicated that schools with more than five TA cases ($n = 130$) were statistically indistinguishable from schools with five or fewer TA cases ($n = 655$) in terms of the percent of enrolled minority students and school size ($ps > .05$). Schools with more than five TA cases had a higher percentage of students receiving FRPM ($M = 51.0\%$) than those from schools

Table 3
Logistic Regression Odds Ratios for Statewide Sample

Predictors	Serious classification[a]			Threat attempted		
	OR	95% LB	95% UB	*OR*	95% LB	95% UB
Grade: Elementary[b]	.57***	.42	.78	2.10	.91	4.87
Grade: High[b]	1.10	.99	1.24	1.29	.96	1.73
Female[c]	.92	.69	1.23	1.48	.77	2.86
SPED[d]	1.27*	1.00	1.60	1.47	.82	2.64
Race: Black[e]	.97	.75	1.26	1.62	.91	2.89
Race: Hispanic[e]	.83	.53	1.31	.77	.19	3.06
Race: Asian[e,g]	.52	.23	1.14	—	—	—
Race: Other[e]	1.04	.71	1.52	.57	.14	2.36
Threat nature: Battery	1.61**	1.20	2.15	3.33***	1.77	6.25
Threat nature: Homicide	1.40*	1.07	1.82	.22*	.07	.73
Weapon in possession	4.41***	2.80	6.96	1.15	.38	3.45
Threat communicated: Indirectly[f]	1.39	.91	2.11	.06***	.01	.28
Threat communicated: Directly[f]	1.28	.87	1.90	.58	.23	1.44
Target: Student	.89	.64	1.23	2.17	.77	6.14
Target: Faculty	.84	.54	1.32	2.34	.67	8.15
Target: Staff	1.70	.93	3.09	.98	.26	3.75
Target: Administrator	3.55**	1.73	7.30	2.21	.60	8.12
Target: Multiple persons	1.75	.81	3.77	.72	.16	3.30
Serious threat				12.48***	5.51	30.22

Note. *OR* = Odds ratio; LB = lower bound; UB = upper bound; SPED = special education.
[a] n = 1,865 cases in 758 schools. [b] middle as reference group. [c] male as reference group. [d] identified as non-SPED as reference group. [e] White as reference group. [f] implicit as reference group. [g] only one Asian student attempted a threat, therefore they were omitted from this analysis.
* $p < .05$. ** $p < .01$. *** $p < .001$.

with five or fewer TA cases (M = 43.8%), $t(774) = 3.05$, $p < .01$. Complete results of these analyses are available upon request.

Discussion

This study provides the first statewide examination of student threat assessment, a widely advocated violence prevention strategy for schools. We conducted a systematic analysis of the determinations that school threat assessment teams made about the seriousness of threats and examined how those determinations are associated with student demographic backgrounds and characteristics of their threats. We then extended this line of analysis to show how student demographic backgrounds, threat characteristics, and the team's classification of threat seriousness could distinguish the small proportion of threats that students attempted to carry out from other threats.

Characteristics of Students Making Threats

Threat assessments were conducted on students at all grade levels, with the highest frequencies in the upper elementary and middle school grades. These findings could reflect in part the impulsivity of young children who are prone to make reckless and exaggerated statements. Notably, threats to kill were more common in elementary than secondary school, but were most often not considered serious by the threat assessment teams. Anecdotally, there were many cases in which a frustrated young student shouted a threat to "kill" someone that the team determined was not a serious threat to commit a homicide but instead an expression of anger.

The disproportionate number of threat cases in the upper elementary and middle school grades is consistent with the higher rate of aggressive behavior observed in preteen boys (Espelage & Holt, 2012; Nansel et al., 2001) and the generally elevated rate of disciplinary infractions observed in those grades (Losen & Martinez, 2013). Consistent with previous reports that male students have disciplinary infractions at 2 to 4 times the rate of female students (Skiba et al., 2014), male students in the present study were almost four times more likely to be referred for threat assessment than female students. It is not surprising that male students accounted for nearly 75% of threat cases, since they are generally more aggressive and more likely to engage in fighting than female students (Nansel et al., 2001).

A disproportionate number of cases involved students receiving special education services. This is consistent with a previous study that found a similarly elevated frequency of threats made by students in the special education population (Kaplan & Cornell, 2005). However, Kaplan and Cornell (2005) found that the high rate was not uniform across special education categories. They reported that students classified with emotional disturbance (ED) exhibited the highest threat rates, followed by students with other health impairments (OHI) and then students receiving services for a learning disability (LD). The elevated frequencies for ED and OHI categories are consistent with the observation that threats are often a result of frustration and poor coping skills. Students identified for special education services are more likely to have difficulties in social interactions, as well as learning disabilities that lead to frustration (Bowman-Perrott, Benz, Hsu, Kwok, Eisterhold, & Zhang, 2013).

The racial/ethnic breakdown of students referred for threat assessment differed from the overall enrollment of the sample schools. Black students were disproportionately more likely to be referred for threat assessment while Hispanic and Asian students

were less likely to be referred. This finding is consistent with well-established trends for Black students to receive discipline referrals at higher rates than their White peers (e.g., Losen & Martinez, 2013; Skiba et al., 2011). These findings suggest that referrals for threat assessment might be subject to the same influences that lead to the higher rates of disciplinary referrals for Black students. However, it is important to distinguish between racial/ethnic differences in student referrals for threat assessment and disciplinary consequences for those students. In an investigation of disciplinary consequences for students receiving a threat assessment, we found no disparities among Black, Hispanic, and White students in out-of-school suspensions, expulsions, or changes in school placement (Cornell, Maeng, Huang, Shukla, & Konold, in press). Across the three racial/ethnic groups, approximately 47% were given an out-of-school suspension, 0.9% were expelled, and 16% received an alternative school placement.Although there were differences in referral for threat assessment, there were not disparities in disciplinary outcomes.

Characteristics of Threats Determined to Be Serious

Threat assessment is intended to allow schools to distinguish serious threats that pose a danger of violence from threats that are not serious. When threats are determined to be serious, school authorities must take appropriate protective action to prevent violence, which could range from increased supervision of a student to law enforcement intervention. In addition, teams might refer the student for counseling or mental health services. If a student is receiving special education services, there may be a need to review their Individualized Education Plan. Finally, school authorities must consider what kind of disciplinary consequences are appropriate.

Threats made by elementary school students were less likely to be considered serious than threats made by middle school students. This finding is consistent with previous studies of the characteristics of students making threats in schools using the VSTAG model, which found that threats by older students are more likely to be classified as substantive (Burnette et al., 2017; Cornell et al., 2004). The findings of the present investigation extend the previous work by using a statewide sample of schools that use a variety of threat assessment practices rather than a specific model of threat assessment. Future studies might consider whether there are sufficient differences across schools to identify and compare distinct models of threat assessment.

Notably, determinations that a threat was serious did not differ as a function student race/ethnicity; however, threats made by students receiving special education services were more likely to be considered serious. Multiple studies have documented disproportionate use of disciplinary sanctions for minority students and students receiving special education services (e.g., Losen & Martinez, 2013; Losen & Skiba, 2010; Miller & Meyers, 2015; Skiba et al., 2011, 2014; Sullivan, Klingbeil, & Van Norman, 2013). Although threat assessment is not a disciplinary consequence, there is concern that implicit biases, which may play a role in disciplinary disproportionality (Gregory, Skiba, & Noguera, 2010; Staats, 2014; U.S. Department of Justice and Department of Education, 2014), could similarly influence determinations about the seriousness of a student's threats. Dear Colleague letters by the U.S. Department of Education have advised school authorities to investigate disciplinary disproportionality as an indication of possible bias (U.S. Department of Justice and Department of Education, 2014; U.S. Department of Education, 2016).

Certain kinds of threats were more likely to be classified as serious by threat assessment teams. Understandably, threats to kill and threats involving a weapon were more likely to be considered serious than other kinds of threats. Threats of battery were also more likely to be determined serious. One interpretation of this finding is that threats that communicated a more specific intent to harm someone were judged to be more credible, which is consistent with the threat assessment literature (Turner & Gelles, 2003). Threats that were more ambiguous or nonspecific are generally regarded as less serious than more specific threats, which is also consistent with threat assessment literature (O'Toole, 2000). Threats of battery might be of particular concern for early adolescents, since rates of fighting are higher in this age group (Nansel et al., 2001).

While a few studies have investigated the prevalence and negative impact of threats of violence toward teachers (e.g., Gregory, Cornell, & Fan, 2011); to our knowledge, no studies have investigated threats of violence directed toward school administrators. In the present study, only 3.4% of threats were made toward administrators; however, these threats were more likely to be classified as serious ($OR = 3.55$, $p < .01$) than threats against nonadministrators. Because students are most likely to threaten their peers, a threat aimed at an authority figure may seem unusual and indicative of serious intent. The characteristics of these threats should be investigated in future research, especially because school administrators often have the final say in the disciplinary consequences a student receives and might be inclined to impose more serious penalties. In addition, it will be important to determine whether threats toward administrators have a similar negative impact on mental health, job satisfaction, and retention as they do for teachers.

Characteristics of Attempted Threats

The ultimate purpose of threat assessment is to prevent violence, but a large body of research indicates that predictions of violence have only modest accuracy above chance levels (Fazel, Singh, Doll, & Grann, 2012). One reason for the low accuracy of violence prediction efforts is that violent behavior has a low base rate, even in a population of individuals who have made threats. Another reason is that a person might have the intent to commit a violent act, but be stopped by circumstantial or situational factors before the threat can be carried out. In light of these considerations, threat assessment is concerned with identifying persons who have a serious intent to commit violence rather than specifically predicting violence. Consistent with previous studies (Nekvasil & Cornell, 2012), only a small percentage of threats (3.3%) in this sample were attempted.

A core assumption of threat assessment is that interventions should maximize the potential to prevent violence for a student with a serious intent to harm. However, this assumption rests on the ability of threat assessment teams to identify students who are most likely to attempt to carry out their threat. Our analyses indicate that team determinations that a threat is serious have some validity. Threats classified as serious were approximately 11 times more likely to be attempted than nonserious threats. When other

threat characteristics were statistically controlled for, the *OR* for a serious classification was 12.48.

These results do not fully represent the accuracy of the determination process and may underestimate the team's success. In threat assessment, false negative cases (attempted cases that were not determined to be serious) have much more practical significance than false positives (serious cases that were not attempted). False negatives are of special concern because they indicate a missed opportunity to prevent violence. In contrast, false positives could represent successful efforts by the threat assessment team to intervene with a student who was appropriately recognized as serious.

In addition to the team's classification of a threat as serious, several other variables were associated with an increased risk of attempted violence. Threats of battery were significantly more likely to be attempted than other threats (*OR* = 3.33). This finding might reflect the relatively high rate of fighting observed in early adolescent males (Nansel et al., 2001). In contrast, threats of homicide, while more likely to be classified as serious, were significantly less likely (*OR* = .22) to be attempted. Threat assessment teams may tend to give too much weight to threats of homicide because of their disturbing nature, and out of an abundance of caution, classify them as serious.

Unexpectedly, threats that were communicated indirectly were less likely to be attempted than implicit threats. Indirect threats are expressions of intent to harm someone that are communicated to a third party rather than directly to the target. Implicit threats are those that are not overtly communicated but implied by concerning behaviors and actions. Studies of school shootings indicated that indirect threats were especially concerning (O'Toole, 2000; Vossekuil et al., 2002). It appears that the universe of indirect threats contains large proportions that are not attempted, which makes it challenging for teams to know how to evaluate them. It is likely that other characteristics of the threat, or a more refined classification of how the threat is communicated, will be needed.

Student race was generally not associated with attempting a threat for Black and Hispanic students in comparison to White students. However, Asian students were much less likely to attempt a threat than White students. Among the subgroup of 50 Asian students who received a threat assessment, only one attempted a threat. These findings are consistent with the relatively low rate of disciplinary infractions observed in Asian students (Wallace, Goodkind, Wallace, & Bachman, 2008).

Although students receiving special education services made threats at a comparatively high rate, and their threats were classified as more serious by teams, they were not significantly more likely to attempt their threats than students receiving regular education. These finding are consistent with the view that many students receiving special education services have difficulties tolerating frustration and may impulsively express their distress in a hostile manner, but without intent to carry out their threat. Another contributing factor may be that many students in special education programs have a higher level of staff monitoring and benefit from educational programs that could address their frustration and hostility before it escalates into violent behavior.

Threat assessment is not an effort to predict violence, but to prevent violence by promptly directing resources to help students and resolve threatening situations. Violence may be too rare to predict individual cases with sufficient accuracy, but by devoting more time and effort to higher risk cases, as indicated by serious threats, it may be possible to prevent violence on a schoolwide level. To accomplish prevention efficiently and avoid over reacting to threats that are not serious, teams must be able to distinguish serious threats from threats that are not serious. These results show that a team's assessment of a threat as serious has some typical characteristics and that the designation of a threat as serious is associated with a higher rate of attempts. Attempts are more appropriate to measure than carried out threats because the difference between a threat that is attempted and one that is carried out are essentially circumstantial and therefore not likely to be predicted. The attempted and carried out cases involve similar background and motives, but may differ in execution and in the fortuitous presence of authorities who intervene.

Limitations, Future Research, and Practice Implications

Although few threats were attempted, these results cannot be attributed to the threat assessment per se, and should be interpreted with caution because there was no control group of schools that did not use threat assessment. Because all Virginia schools were mandated to use threat assessment, such a comparison was not possible. There are obvious practical and ethical problems with allowing threats to go without intervention, although a future study might compare different threat assessment models.

Another limitation is that these analyses are based on school reports of their threat assessment cases, which might not be as complete or accurate as independent observations. It would also be useful to obtain contemporaneous data about cases as they occur rather than retrospective reports at the end of the school year. Team determinations of threat seriousness might be influenced by knowledge of the outcome of the threat.

An important qualification is that these results apply to threats identified for assessment and not the larger pool of all threats students make. In addition, there were many schools that reported no threat cases. Future research should be conducted to better understand what leads some threats to be reported and how to increase student and staff willingness to report threats. In addition, future studies should investigate whether unreported threats differ in important ways from reported threats.

This study does not examine differences in how schools conducted threat assessments. It is possible that some school teams were more proficient at threat assessment, or used practices that were more effective. Teams might differ in important ways in how they gather data for an assessment, how they conceptualize and evaluate case data, and how they respond to students with prevention strategies. These are important areas for future investigation and are included in plans for additional statewide training.

Threat assessment is a violence prevention strategy but it also has implications for discipline. The present study focused on student and threat characteristics and threat outcomes, but did not investigate disciplinary consequences such as school suspension or expulsion, or legal outcomes such as arrest or incarceration, that might follow a threat assessment. A separate report examined the disciplinary and legal consequences assigned to students who received a threat assessment (Cornell et al., in press). However, threat assessment can be regarded as a more flexible alternative to zero tolerance discipline because it encourages school authorities

to consider the circumstances and seriousness of the student's behavior rather than apply a uniform and punitive consequence (Borum et al., 2010). Because of its focus on helping students to resolve conflicts and problems without resorting to violence, threat assessment is compatible with positive behavioral approaches to school discipline (Horner, Sugai, & Anderson, 2010) and restorative justice practices (Gregory, Clawson, Davis, & Gerewitz, 2016).

A final limitation is that the present investigation is retrospective and used threat case report data from the threat assessment team. There is a need for prospective studies that examine the entirety of the process from threat report to assessment to interventions and outcomes. Such research should examine how interventions are associated with student outcomes, as well as how the process affects school climate and safety. There is a need to compare outcomes in schools with and without threat assessment teams and to compare schools that use different threat assessment practices.

In summary, this study contributes new information regarding the prevalence and characteristics of student threats of violence toward others. These findings indicate that schools typically classified threats as serious threats if they were made by students in the middle grades, students who received special education services, involved battery, homicide, or weapon possession, and targeted an administrator. The results of this investigation suggest appropriate distinction of threats as serious or nonserious by threat assessment teams has the potential to support school threat assessment teams in identifying students who may attempt to carry out a threat of violence.

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Received May 16, 2017
Revision received June 13, 2017
Accepted June 14, 2017 ■

JOURNAL OF SCHOOL VIOLENCE
https://doi.org/10.1080/15388220.2019.1694031

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Grade-Level Distinctions in Student Threats of Violence

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ABSTRACT

Virginia law mandates the use of threat assessment in all public schools, yet there is little research on grade-level differences. This study investigated a statewide sample of 3,282 threats from 1,021 schools. Threats significantly differed across grade level in demographics, characteristics, and outcome. As grade increased, students were more likely to threaten physical assaults (OR = 1.11, $p < .001$), but less likely to threaten with weapons (OR = 0.95, $p < .01$). Notably, 1st graders (OR = 2.01, $p < .05$) were two times more likely to threaten to kill, but 9th graders were more likely to attempt their threats (OR = 1.02, $p < .05$). These findings highlight the need to consider grade level in evaluating and responding to student threats of violence.

ARTICLE HISTORY
Received 6 May 2019
Accepted 13 November 2019

KEYWORDS
Grade-level distinctions; student threat assessment; violence prevention

Threat assessment is a violence prevention practice used in schools (American Psychological Association, 2013; National Association of School Psychologists [NASP] School Safety and Crisis Response Committee, 2014) that is expanding substantially with federal training funds from the STOP School Violence Act of 2018 (H.R. 4909, 2018). Florida, Illinois, Kentucky, Louisiana, Maryland, Tennessee, Texas, Utah, and Virginia have legislation encouraging or requiring the use of threat assessment in schools, and 12 additional states are considering legislation for school threat assessment and/or threat reporting (Erwin, 2019; Woitaszewski, Crepeau-Hobson, Conolly, & Cruz, 2018).

Threat assessment has emerged as a specialized form of violence risk assessment that is conducted when a person threatens to carry out a specific targeted act within a relatively short timeframe (Meloy, Hart, & Hoffmann, 2014). Threat assessment teams assess the threat of violence and respond with appropriate prevention steps (National Threat Assessment Center, 2018). Student threat assessment has the potential both to help schools prevent serious acts of violence and at the same time avoid over-reacting to student misbehavior. However, student threat assessment must recognize developmental differences, such as the tendency of youth to make impulsive and emotional statements that might not be serious threats.

Research regarding developmental differences in threats of violence is needed to help teams make appropriate assessments and avoid over-reacting to threats by younger students. The current study investigated threat assessment cases in Virginia schools for potential developmental differences by grade level in threat characteristics and school responses.

Developmental differences in aggression

Aggressive and violent behaviors vary developmentally from childhood through adolescence (Loeber & Hay, 1997). In general, younger children are more likely than older adolescents to make emotional threats of violence that are not indicative of a serious intent to harm someone (Cornell & Sheras, 2006). In contrast, adolescence is a developmental period characterized by an increase in deviant peer influences, risky behaviors, aggression, and violence (Borum, 2000; Moffitt, 1993). There are clear

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developmental differences in the pattern of juvenile arrests for violent crimes. According to the Office of Juvenile Justice and Delinquency Prevention [OJJDP] (2018), most forms of violent offending increase with age. Juvenile arrests for violent offenses are most common between the ages of 15 and 17 for murder (91%; 830 of 910), aggravated assault (67%; 19,030 of 28,220), simple assault (61%; 74,640 of 123,040), and carrying or possessing a weapon (71%; 12,950 of 18,370). Developmental patterns also may exist in threats of violence among children and adolescents.

The pathway to violence is associated with static or historical risk factors. Static risk factors include the youth's race, gender, and age of first offense (Vincent, Perrault, Guy, & Gershenson, 2012). There are developmental differences in dynamic risk factors, which include conduct problems, negative peer relationships, and family environment/conflict (Borum, 2000; Cottle, Lee, & Heilbrun, 2001; Vincent et al., 2012). Vincent et al. (2012) investigated whether age-related differences and dynamic risk factors contributed to the accuracy of risk assessments for 674 adjudicated juveniles on probation. Researchers found that risk assessments significantly predicted both general and violent recidivism in adolescents between the ages of 13–15 and 16–18 years but not in children aged 12 years or below. They suggested that this age discrepancy was due to a low base rate of offending in children aged 12 years or younger. However, previous studies have found a comparatively high rate of threats made in this younger age group (Cornell et al., 2016). Evaluators must consider developmental differences between children and adolescents in their risk factors for violence.

Threat assessment

Threat assessment is a form of risk assessment with a narrower focus that evaluates a specific targeted act that a person threatened to carry out. School-based threat assessment teams use a step-by-step process to gather information, make systematic judgments using both case-specific and dynamic risk factors, and implement management strategies to reduce the risk of violence (Cornell & Sheras, 2006). The teams are multidisciplinary, such as a principal, school mental health personnel, teacher, and/or school resource officer. Understanding developmental differences may help teams make more accurate assessments among student threats.

Threat assessment literature indicates that serious threats are more common among students in middle and high school compared to elementary school (Burnette, Datta, & Cornell, 2018; Cornell et al., 2004; Cornell, Maeng, Huang, Shukla, & Konold, 2018a). Despite the fact that the highest frequencies of student threats occur in upper elementary and middle school, these threats tend to be transient and lack a serious intent to harm others (Cornell et al., 2016). Instead, upper middle and high school students have an increased likelihood of carrying out threats compared to elementary students (Burnette et al., 2018).

Previous studies also have indicated a high prevalence of peer aggression among high school students. A nationally representative survey found that approximately 19% of students reported being bullied; 6% had been threatened or injured with a weapon (i.e. gun, knife, or club); and 3.8% reported carrying a weapon to school on at least one day (Kann et al., 2018). Within the month preceding the survey, 23.6% of students reported being in a physical fight. Students with such a history (i.e., physical fights, access to or use of weapons) tend to display a more serious intent to carry out a threat of violence (; Meloy, Hoffmann, Guldimann, & James, 2012). Similarly, another study surveyed 3,756 high school students among whom approximately 12% of students reported being threatened and approximately 9% reported that the threat was carried out (Nekvasil & Cornell, 2012). These studies indicate that threatening and aggressive behaviors among students are not only common, but typically involve risk factors that are displayed prior to an attack (Meloy et al., 2012).

There are differences in aggressive and threatening behaviors between older and younger adolescents. Researchers found that 9th and 10th grade students (54.5%) had a higher prevalence of being in a physical fight compared to 11th and 12th grade students (38.2%; Kann et al., 2018). Conversely, 11th (5.0%) and 12th grade students (4.2%) had a higher prevalence of carrying a weapon on school property compared to 9th grade students (2.5%). Regarding threats of violence, 12th grade students were less likely to report being threatened than 9th grade students (Nekvasil & Cornell, 2012). These

studies indicate that, overall, there is a decline after 9th grade among student threats, which contrasts with the increases observed in juvenile arrest statistics.

Despite the high proportion of aggressive and threatening behaviors observed in schools, serious acts of violence occur at a low rate. According to the Centers for Disease Control and Prevention [CDC], National Center for Injury Prevention and Control (2019), there were more than 800,000 shooting casualties from 2011 to 2017 but only a fraction (0.04%; 321 of 800,000 shooting casualties) of the total gun violence in the United States occurred at schools. Another study using data from the National Incident-Based Reporting System found that homicides rarely occurred in schools and colleges (0.3%) compared to other locations (Nekvasil, Cornell, & Huang, 2015). Lastly, an epidemiological study identified 215 school shootings between 1990 and 2012 (Shultz, Cohen, Muschert, & Flores de Apodaca, 2013). The majority (60%) of these shootings occurred in a high school, followed by a college/university (18%), an elementary school (11%), and a middle school (10%). A third (32%) of the perpetrators were aged 18 years old or below and the vast majority (73%) were males.

Adolescents often exhibit risk factors prior to serious acts of violence. A previous study retrospectively examined 37 incidents of targeted school violence perpetrated by students from 1974 to 2000 (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). The researchers defined targeted school violence as an incident perpetrated by a current or former student who purposefully chose to attack a particular target at his or her school with a lethal weapon (i.e., gun, knife). The majority (85%) of the student attackers was adolescents and all attackers (100%) were males. Approximately a third of the student attackers (31%) had a history of violence and the majority (63%) acquired a weapon prior to the attack. These risk factors reflect the seriousness and credibility of a potential threat by middle and high school students (Burnette et al., 2018). Threat assessment should examine how student threats change across grade levels and what grade levels experience the largest changes.

Student characteristics that influence a threat assessment referral

There are a disproportionate number of threat referrals involving male students, minority students, and students receiving special education services (Cornell et al, 2018b). The demographic composition of student threat assessment cases is not proportionate to the general student population. Research indicates that male students are four times more likely to be referred for a threat assessment compared to female students (Cornell et al., 2018a). In fact, male students accounted for approximately 75% of 1,865 threat assessment cases conducted in Virginia during the 2013–14 academic year. These findings are consistent with previous research that males receive disciplinary infractions at a rate of two to four times higher than female students (Skiba et al., 2014). Similarly, there are higher rates of bullying and physical altercations among male adolescent students (Espelage & Holt, 2012; Nansel et al., 2001).

Minority students are disproportionately referred for a threat assessment. Cornell et al. (2018b) found that the proportion of Black students referred for a threat assessment was 1.3 times higher than the proportion of White students. Conversely, Hispanic and Asian students were less likely to be referred for a threat assessment compared to White students. These findings coincide with well-known racial disparities observed in exclusionary discipline practices (U.S. Departments of Justice and Education, 2014). Black students receive disciplinary referrals at a higher rate compared to White students (Losen & Martinez, 2013; Nansel et al., 2001).

Lastly, students enrolled in special education (SPED) services are approximately four times more likely to receive a threat assessment compared to students enrolled in regular coursework (Cornell et al., 2018a). This finding parallels previous research that indicated students in special education made disproportionately more threats compared to students not receiving special education services (Kaplan & Cornell, 2005). Furthermore, students classified with an emotional disturbance (ED) had the highest threat rate, students with other health impairments had the second highest rate, and students with learning disabilities had a lower rate.

Current study

School threat assessment teams are directed to consider the maturity and capability of the student making a threat (Cornell et al., 2018a; Mohandie, 2014). Although previous studies suggest that threats by children are less serious than threats by adolescents (Burnette et al., 2018; Cornell et al., 2004; Cornell et al., 2018a), it is unknown whether threat characteristics and outcome differ across grade level, and where these differences might occur. The present study used a large, statewide sample to identify grade level differences among risk factors typically associated with more serious threats.

The primary research question was, "How do student threats of violence differ in prevalence, characteristics, and outcome across grade level?" The study examined how frequently threats of violence occurred within grades. Threat characteristics referred to the nature of the threat made by the student. It was hypothesized that students in older grades compared to younger students would be more likely to make a threat involving a weapon. Older students were also hypothesized to be more likely to threaten to kill, bomb, or physically assault someone compared to younger students. Lastly, the study examined whether the student attempted or did not attempt to carry out the threatened act of violence. It was hypothesized that older students would be more likely than younger students to attempt to carry out their threat. The study considered the influence of student demographics including gender, race, and SPED status in assessing grade level effects.

Method

Participants

The sample consisted of 3,282 threat cases reported by 1,021 schools across two school years (2013–14 and 2014–15). Two years were used in order to obtain a larger sample. Of the 1,021 schools, 548 (54%) were elementary, 240 (24%) were middle, and 233 (23%) were high schools. The racial/ethnic breakdown of students making threats consisted of 1,681 (51%) White, 1,011 (31%) Black, 254 (8%) Hispanic, and 336 (10%) other[1] (Table 1). The racial/ethnic composition of students making threats was similar to the general composition of the student population in these schools.[2] Most threats (78%) in the sample were made by boys, and threats were reported across all grade levels from kindergarten through 12th grade (Mean = 6th grade, Mode = 5th grade). The number of threat assessments conducted across grade levels was comparable between the 2013–14 and 2014–15 school years.

Procedure

Data were obtained from the School Safety Audit Survey, an annual survey completed by schools online for the Virginia Department of Criminal Justice Services (DCJS). The survey is mandated by state law (*Code of Virginia*, §22.1–279.8) and had 100% participation by Virginia public schools. The study was limited to items adopted by DCJS, the state agency in charge of the survey, and asked over the course of two specific years (2013–14 and 2014–15). School principals provided case details for a maximum of five student threat assessment cases during each school year. School principals reported case information based on recordable events that occurred during the year; the division superintendent's office approved the reported case information. Of Virginia's 1,746 schools, the majority (n = 1,462; 84%) had five or fewer cases, and thus reported all their cases. The maximum was set at five in order to reduce the reporting burden on schools that had conducted a large number of cases.

Measures

School principals completed surveys regarding student demographics, threat characteristics, threat outcomes, and school responses (for more information, see Virginia Department of Criminal Justice Services [VDCJS], 2018). To protect student identities, no names or other identifying information were collected.

Table 1. Descriptive statistics across data collection year.

Student	Total Sample N = 3,282	
School Type		
Elementary	548	(53.7%)
Middle	240	(23.5%)
High	233	(22.8%)
Gender[1]		
Male	2,550	(80.8%)
Female	606	(19.2%)
Race/Ethnicity		
White	1,681	(51.2%)
Black	1,011	(30.8%)
Hispanic or Latino	254	(7.7%)
Other[2]	336	(10.2%)
SPED Status[3]	1,168	(36.5%)
Grade[4]		
Kindergarten	111	(3.4%)
1st Grade	151	(4.6%)
2nd Grade	244	(7.5%)
3rd Grade	292	(8.9%)
4th Grade	349	(10.7%)
5th Grade	368	(11.3%)
6th Grade	305	(9.3%)
7th Grade	343	(10.5%)
8th Grade	330	(10.1%)
9th Grade	321	(9.8%)
10th Grade	191	(5.8%)
11th Grade	155	(4.7%)
12th Grade	108	(3.3%)
Weapon Use or Possession	580	(17.7%)
Threat Nature		
Threat to Kill	713	(21.7%)
Bomb Threat	152	(4.6%)
Threat to Assault without a weapon	595	(18.1%)
Attempted Threat	118	(3.6%)

Note. [1]One hundred and twenty-six cases out of 3,282 were missing, researchers controlled for unknown gender. [2]Other includes Asian, mixed race, other, and unknown. [3]Eight-six cases out of 3,282 were missing, researchers controlled for unknown special education status. [4]Fourteen cases out of 3,282 (i.e., <1%) were missing.

Threat characteristics

Both surveys asked school principals whether the student explicitly threatened to use a weapon to harm someone and/or made a threat while in possession of a weapon. Reported weapons included firearms, knives, or blunt objects (i.e., baseball bat). This threat characteristic is referred to as "threats involving weapons" within the current study. Similarly, both surveys asked whether the student threatened to use a bomb or other explosive device and/or made a threat while in possession of an explosive device. The current study refers to this threat characteristic as a "bomb threat." In total, four threat characteristics (coded 1 for yes and 0 for no) were measured: (1) threats involving weapons; (2) threat to kill; (3) bomb threat; and (4) threat to physically assault someone.

Threat outcomes

Both surveys asked whether there was an (unsuccessful) attempt to carry out the threat or the threat was (successfully) carried out. Researchers combined these two categories in the current study due to the low number of threats that were attempted but averted (2.3%) or carried out (1.2%). One kind of threat outcome (coded 1 for yes and 0 for no) was measured: whether the student attempted to carry out the threat.

Covariates

Consistent with previous research, the sample had a disproportionate number of threat cases involving male students (Cornell et al., 2018a; Espelage & Holt, 2012; Losen & Martinez, 2013; Skiba et al., 2014) and students receiving special education services (Cornell et al., 2018a; Kaplan & Cornell, 2005). Previous literature also found a disproportionately high rate of minority students were referred for threat assessments compared to the racial/ethnic composition of the sample (Cornell et al., 2018b). The analyses, therefore, controlled for student demographics obtained from the survey, which included gender, race/ethnicity, and special education (SPED) status.

Analytic strategy

Descriptive statistics were calculated for key variables (e.g., gender, race/ethnicity, special education status, threat characteristics, and threat outcome) across both years of data collection (Table 1).

To assess threat characteristics, four logistic regression models investigated the association of threat characteristics with the grade of the student, where the four threat characteristics of violence were regressed on the grade level of the student. Both linear and quadratic forms of the grade level regressor were examined to evaluate the possibility of non-linear associations. The four threat characteristics included threat involving weapons, threat to kill, bomb threat, and threat to physically assault. A fifth logistic regression model investigated the likelihood of a threat resulting in an actual attempt to carry out the threat as a function of grade level.

All models controlled for student-level demographics that included gender, race/ethnicity, and special education status. Cluster robust standard errors were used to account for the variance attributed at the school level (e.g., school size, students nested within schools; Huang, 2014; Rust, 1985). Logistic regression results are presented using standard odds ratios (ORs), where ORs >1 signify a higher likelihood of a threat characteristic being present (or threat being attempted) as student grade level increases, and ORs < 1 indicate a lower likelihood of a threat characteristic or attempt. To aide in the interpretation of effect sizes, when predictors were dichotomous, ORs were converted into Cohen's *d* values using ln(OR)/1.81 (Chinn, 2000). These effect sizes were interpreted as small (~0.20), moderate (~0.50), or large (~0.80; Cohen, 1992).

Results

The proportion of threats increased between kindergarten (3%; 111 student threats) and the 5th grade (11%; 368), and decreased during the 10th (6%; 191), 11th (5%; 155) and 12th grades (3%; 108). Fourth and 5th grade students made the most threats (Table 1) and the majority of these threats were classified as low risk (85%; 608 of 717). Less than one-third of high school student threats were classified as high risk (28%; 219 of 775). The proportion of threats made by male students (mean 79%) was consistent across grade level. The proportion of White students (mean 56%) remained consistent across grades, whereas the proportion of Black students peaked in 3rd grade (38%; 110 of 292 student threats) and Hispanic students peaked in the 1st grade (11%; 17 of 151). At least a third of students making a threat of violence were enrolled in special education courses between the 4th (33%; 116 of 349 students were SPED) and 12th grades (44%; 48 of 108). Special education status was not significant regarding the association of threat characteristics and outcome with grade level.

Although 4th and 5th grade students made the most threats, 9th grade students made the most attempts to carry out their threats. The attempt rate fluctuated across grade level: rates began high at approximately 5% from kindergarten to the 2nd grade, steadily decreased to 1% (14 of 244) in the 6th grade, peaked to 7% (22 of 118) in the 9th grade, and decreased to approximately 3% in the remaining high school grades.

Regression analyses

Linear and nonlinear logistic regression models that examined relations between threat characteristics as a function of student grade level are presented in Table 2. Broadly, the association between threat characteristics and student grade level were linear, but a nonlinear pattern was found for the association of attempted threats and grade level. As hypothesized, students were more likely to threaten to physically assault someone (d = 0.06) as grade level increased. However, older students were less likely to make threats involving weapons (d = − 0.03) or threaten to kill (d = − 0.03). Student threats to bomb the school were not distinguishable by grade level.

Regarding threat outcome, the variability in students who attempted and/or carried out threats was attributable to curvilinear effects of grade level (d = 0.01). As hypothesized, threats were more likely to be attempted as students increased in grade level, but the rate decreased after the 9th grade. No student demographic control variables were significant regarding the association of attempted threats and grade level.

There were several significant findings for the student demographic control variables. Specifically, as grade level increased, female students were less likely, compared to male students, to make threats involving weapons (d = − 0.18) and to make a bomb threat (d = − 0.43). However, as student grade level increased, females were more likely than males to threaten physical assault (i.e., hit, fight, kick, strangle; d = 0.22). Compared to White students, Black (d = − 0.29) and Hispanic students (d = − 0.55) were less likely to make a bomb threat as grade level increased. Black students were less likely than White students to make a threat to kill (d = − 0.13), but were more likely to threaten physical assault (d = 0.30).

Secondary analyses

Due to the observed linear and curvilinear relationships between threat characteristics and outcome by grade level, specific differences among grades were investigated through additional regression analyses (Table 3). Grade 9 was chosen as the reference group due to the decreased proportion of student threats observed between the 9th (321 student threats) and the 10th (191), 11th (155), and 12th (108) grades. Significant findings among student demographic control variables remained the same. Regarding threat characteristics, 11th grade students were less likely to make threats involving weapons compared to 9th grade students (d = − 0.52). Kindergarten through 6th grade (d = − 0.66; d = − 0.41; d = − 0.36; d = − 0.48; d = − 0.36; d = − 0.61; d = − 0.27) and 8th grade students (d = − 0.22) were less likely to threaten to physically assault someone compared to 9th grade students. Tenth grade students (d = − 0.61) were significantly less likely to

Table 2. Logistic regression odds ratios for threat characteristics (n = 3,282).

	Weapon Involvement			Threat to Kill			Bomb Threat			Physical Altercation			Attempted Threat		
Predictors	*OR*	95% CI		*OR*	95% CI		*OR*	95% CI		*OR*	95% CI		*OR*	95% CI	
Student-level variables															
Female[1,2]	0.72**	0.58	0.89	1.14	0.94	1.38	0.46***	0.28	0.77	1.50**	1.23	1.83	1.32	0.90	1.93
Black[3]	0.94	0.77	1.14	0.79*	0.67	0.95	0.59**	0.40	0.86	1.71***	1.41	2.09	1.52	1.06	2.18
Hispanic[3]	1.48	1.11	1.97	0.74	0.53	1.02	0.37***	0.17	0.79	1.15	0.82	1.62	0.79	0.38	1.65
Other[3,4]	1.06	0.80	1.42	0.81	0.62	1.06	0.88	0.53	1.45	0.70*	0.51	0.96	0.64	0.31	1.32
SPED Status[5,6]	0.98	0.83	1.17	0.10	0.85	1.17	1.13	0.82	1.56	1.22	1.03	1.45	1.62	1.15	2.28
Grade Level[7]	0.95**	0.93	0.98	0.95**	0.92	0.98	1.00	0.95	1.05	1.11***	1.07	1.15	0.79*	0.66	0.95
Grade Level Squared	–	–	–	–	–	–	–	–	–	–	–	–	1.02*	1.00	1.03

Note. *p < .05. **p < .01. ***p < .001. [1]Male is the reference group. [2]Due to some schools failing to report the student's gender, researchers controlled for unknown gender. [3]White is the reference group. [4]Other includes Asian, mixed race, other, or unknown. [5]Students identified as non-special education is the reference group. [6]Due to some schools failing to report the student's special education status, researchers controlled for unknown special education status. [7]Fourteen cases out of 3,282 (i.e., <1%) were missing. All results use cluster robust standard errors.

Table 3. Logistic regression odds ratios for between grade level differences.

	Weapon Involvement			Threat to Kill			Bomb Threat			Physical Altercation			Attempted Threat		
Predictors	*OR*	95% CI		*OR*	95% CI		*OR*	95% CI		*OR*	95% CI		*OR*	95% CI	
Student-level variables															
Female[1,2]	0.72**	0.58	0.89	1.11	0.92	1.35	0.43***	0.26	0.72	1.50**	1.23	1.84	1.40	0.95	2.06
Black[3]	0.95	0.78	1.15	0.79*	0.66	0.94	0.59**	0.40	0.86	1.72***	1.42	2.10	1.57	1.09	2.26
Hispanic[3]	1.47	1.10	1.96	0.74	0.53	1.02	0.36***	0.17	0.75	1.12	0.80	1.58	0.77	0.37	1.61
Other[3,4]	1.07	0.80	1.43	0.82	0.62	1.08	0.90	0.55	1.49	0.70*	0.51	0.96	0.61	0.29	1.27
SPED Status[5,6]	0.98	0.83	1.16	0.99	0.84	1.16	1.12	0.80	1.56	1.25	1.05	1.48	1.65	1.17	2.33
Grade Level[7]															
Kindergarten	1.33	0.85	2.07	1.56	0.96	2.52	0.75	0.28	2.02	0.30***	0.16	0.56	1.07	0.49	2.33
1st Grade	1.17	0.76	1.79	2.01*	1.31	3.09	1.19	0.51	2.82	0.47***	0.29	0.78	0.66	0.29	1.52
2nd Grade	1.30	0.89	1.91	1.49	0.99	2.23	0.57	0.24	1.39	0.52**	0.33	0.83	0.95	0.47	1.92
3rd Grade	1.11	0.77	1.59	1.58	1.09	2.30	0.75	0.35	1.61	0.42***	0.28	0.64	0.31***	0.13	0.76
4th Grade	1.08	0.77	1.52	1.56	1.09	2.23	0.87	0.41	1.84	0.52***	0.35	0.78	0.47**	0.24	0.91
5th Grade	1.11	0.79	1.57	1.44	1.00	2.08	0.78	0.39	1.57	0.33***	0.22	0.49	0.48**	0.26	0.91
6th Grade	1.03	0.72	1.48	1.75	1.20	2.56	1.42	0.70	2.88	0.62**	0.41	0.93	0.13***	0.05	0.38
7th Grade	1.13	0.78	1.62	1.27	0.88	1.82	1.27	0.63	2.53	0.77	0.54	1.12	0.34***	0.17	0.71
8th Grade	1.05	0.72	1.53	1.43	0.98	2.10	0.72	0.35	1.50	0.67*	0.45	0.98	0.55	0.27	1.12
10th Grade	0.76	0.49	1.19	0.95	0.60	1.51	0.33**	0.11	0.95	0.90	0.63	1.28	0.31***	0.12	0.76
11th Grade	0.39***	0.22	0.68	1.31	0.90	1.91	0.53	0.20	1.42	1.10	0.72	1.67	0.56	0.21	1.51
12th Grade	0.91	0.52	1.57	0.66	0.38	1.15	1.32	0.58	2.99	1.09	0.68	1.76	0.29**	0.08	1.03

Note. *$p < .05$. **$p < .01$. ***$p < .001$. [1]Male is the reference group. [2]Due to some schools failing to report the student's gender, researchers controlled for unknown gender. [3]White is the reference group. [4]Other includes Asian, mixed race, other, or unknown. [5]Students identified as non-special education is the reference group. [6]Due to some schools failing to report the student's special education status, researchers controlled for unknown special education status. [7]Ninth grade is the reference group; 14 cases out of 3,282 (i.e., <1%) were missing. All results use cluster robust standard error.

make a bomb threat compared to 9th grade students. Of note, 1st grade students ($d = 0.40$) were two times more likely to threaten to kill someone compared to 9th grade students.

Regarding threat outcome, 3rd ($d = -0.65$), 4th ($d = -0.42$), 5th ($d = -0.40$), 6th ($d = -1.12$), and 7th grade students ($d = -0.59$) were less likely to attempt a threat compared to 9th grade students. In high school, 10th ($d = -0.66$) and 12th grade students ($d = -0.69$) were less likely to attempt a threat compared to 9th graders.

Discussion

This study provides new evidence to support grade-level distinctions in student threats of violence. Developmental differences are important to consider in assessing a threat. Younger students may be more inclined to make impulsive, exaggerated threats that they do not intend to carry out, whereas older students are less likely to make such threats. Threat assessment teams need information on how threats vary across grade levels. Results from a large statewide sample confirm that students across grade levels differed in the types of threats they make and in the likelihood of acting upon their threats. Threats occurred across all grades but peaked in the 4th and 5th grades. After the 9th grade, threats of violence dramatically decreased in frequency. In addition to a decrease in threat frequency, upper high school students were less likely to make threats involving weapons and less likely to threaten to kill someone. Notably, 9th graders were most likely to threaten physical assault and most likely to attempt to carry out a threat compared to other grades. Overall, these findings have important assessment and management implications for school-based teams.

Prevalence

Threat assessment teams are necessary in elementary schools to avoid over-reacting to threats and subjecting elementary school students to zero tolerance consequences (George, 2013). The higher incidence of threatened violence by 4th and 5th grade students may reflect, in part, developmental differences between

elementary and high school students, such as the tendency of youth to make impulsive and exaggerated statements (Romer, 2010). Notably, the majority of threats occurring in the 4th and 5th grades were classified as not serious, consistent with previous reports that elementary school threats were less likely to be considered serious compared to middle school threats (Cornell et al., 2018a).

There was a decrease in student threats during the 10th, 11th, and 12th grades, and the majority of high school threats were classified as not serious, despite research noting an increase in juvenile arrests for this age group (OJJDP, 2018). Students in upper high school are shown to have greater maturity and self-control, as well as the understanding to not make explicit threats of violence (Björkqvist, Österman, & Kaukiainen, 1992). Nevertheless, students in this age group are capable of serious acts of delinquency, most of which occur outside of school.

As grade level increased, there was a small association that female students were more likely to threaten to physically assault someone compared to male students. The prevalence of physical fighting among high school females peaked in the 9th grade (23%). Inspection of the data, however, revealed that male students (66%) made the majority of threats to physically assault someone, as well as the majority of attempts (67%) to carry out the assault. Although female students were more likely to make such a threat as grade level increased, male students maintained a higher rate of physical altercations (Nansel et al., 2001).

Although the majority of students who made threats were White (Table 1), minorities were associated with certain threat characteristics (Table 2). As grade level increased, there was a small association that Black students were more likely to threaten physical harm compared to White students. While Black students are disproportionately more likely to be referred for a threat assessment, a threat assessment is not a disciplinary consequence. Threat assessments and disciplinary referrals are separate school-based responses to student behavior. Previous research found no disparity in disciplinary outcomes using student threat assessment, such as out-of-school suspensions, expulsions, or changes in school placements (Cornell et al., 2018b). If a threat is deemed serious (i.e., a bomb threat), then a school may be inclined to assign serious disciplinary consequences to that student.

Bomb threats were distinguishable by student demographics, but not by grade level. Male students were more likely to threaten to bomb the school as grade level increased. Further inspection of the data indicated that most bomb threats were made by male students (89%; 125 of 140) and peaked in the 6th grade (9%; 18 bomb threats). As grade level increased, White students also were more likely than minority students to make a bomb threat. Indeed, the majority of threats to bomb the school were disproportionately made by White students (61%; 93 of 152 threats). Typically, after receiving a bomb threat, schools are evacuated or closed. Since 1982, Virginia has mandated:

> Any person who … communicates to another by any means any threat to bomb … shall be guilty of a Class 5 felony; provided, however, that if such person be under fifteen years of age, he shall be guilty of a Class 1 misdemeanor (*Code of Virginia*, §18.2–83).

Regardless of the age of the student responsible, bomb threats require special attention from school personnel due to their disruptive nature and the potential for a high volume of casualties (Burnette et al., 2018). Disciplinary consequences may be severe for bomb threats even though, from a threat assessment perspective, the actual danger to others is minimal if the student has no bomb or intent to carry out the bomb threat.

Threat characteristics

Student threats of violence were clearly distinguishable by grade level. Upper high school students were less likely to make threats involving weapons (Table 2) and secondary analyses indicated a potential explanation due to grade level differences (Table 3). There was a moderate association that 11th grade students were less likely to make a weapons threat compared to 9th grade students. For example, the rate of a threat involving weapons by 9th grade students (18%) was two times more than the rate for 11th grade students (7%). This finding indicates that older high school students are

less likely to *threaten* certain behaviors but continue to pose an increased risk of *committing* aggressive behaviors (OJJDP, 2018; Vossekuil et al., 2002). The majority of juveniles arrested for carrying or possessing a weapon are between the ages of 15 and 17 (OJJDP, 2018). Moreover, 11th and 12th grade students were found to have a higher prevalence for carrying weapons to school compared to 9th grade students (Kann et al., 2018). These observations underscore the importance of distinguishing trends for *threats* from trends for *violent behaviors*. Ninth grade students are more likely to threaten such behavior, but older students may realize that such statements will get them into trouble and are more circumspect.

Compared to other grades, 1st grade students were most likely to make a threat to kill someone. The severity of a student threat of violence cannot be considered in isolation; school-based teams should recognize the grade of the student making the threat. Promoting Alternative Thinking Strategies and Life Skills Training are examples of school-based programs that attempt to help younger children inhibit such impulsive and aggressive responses to conflict (Modecki, Zimmer-Gembeck, & Guerra, 2017). Broadly, these programs aim to increase children's awareness and understanding of their own emotions to implement better coping strategies in times of stress.

Older students were more likely to threaten to physically assault someone compared to elementary school students, which parallels the higher rate of arrests for physical assault between the ages of 15 and 17, (OJJDP, 2018). Secondary analyses indicated multiple grades were less likely to threaten to assault someone compared to 9th grade, with small to moderate effect sizes. Although the proportion of threats to physically assault someone was low (18%), 9th graders (24%) were two times more likely to make such a threat compared to kindergarten students (9%).

Threat outcome

Broadly, the frequency of attempted and/or carried out threats was low (4%) for all grades. The rate increased from 1% in the 6th grade to 4% in the 8th grade and 7% in the 9th grade. The low attempted threat rate parallels the low base rate of violence in the United States, especially within schools (Nekvasil et al., 2015).

Notably, 9th grade students were most likely to attempt to carry out a threat. A curvilinear effect was observed in which the attempted rate varied across grade level. Multiple grades were less likely to attempt a threat than 9th grade students; the effect sizes ranged from small to moderate. For example, the attempt rate for 9th grade (7%) was double the attempt rate for 3rd grade (3%). School-based teams might classify a 9th grade student's threat to physically assault someone as serious, based on 9th grade students' increased rate to threaten physical assault and increased attempt rate.

Although student threats of violence are not often attempted, students who make threats are at an increased risk for violence. For example, a study by Singer and Flannery (2000) found that students who frequently threatened violence were 14 to 23 times more likely to report attacking someone with a knife and 17 times more likely to report shooting at someone than students who did not engage in threatening others. Even students who infrequently threatened others were more likely to exhibit violent behaviors compared to students who did not make threats.

Clinical implications

School-based teams should be aware of developmental differences in frequency of threats when evaluating student threats of violence. These findings support the general assumption that school-based teams should take threats by students in high school more seriously than threats by students in elementary grades. Despite the substantial decrease in threats following the 9th grade, the peak for attempting to carry out a threat was in the 9th grade. Older students remain at an increased risk of carrying out threats of violence and different risk levels would be necessary for threats made by younger students. Appropriate management strategies for such a 9th grade student would include mental health services, increased supervision, changes in class schedule, and possibly detention or suspension. Both universal and targeted school-based programs have

been found to be effective in reducing aggressive and disruptive behaviors among students, especially those at an elevated risk of violence (Wilson & Lipsey, 2007).

Limitations and future research

This study was retrospective and cross-sectional. It relied on two annual surveys of threat assessments conducted during the prior school year. Researchers were unable to monitor or record case data prospectively as the threat assessment cases unfolded in real time. Like other cross-sectional surveys of school safety, this study investigated the correlates of grade-level distinctions but did not demonstrate a causal effect of grade level on threat characteristics and outcome. Another limitation was that schools reported a student's grade level rather than a student's age. Some of the students may have been relatively older or younger than peers in their respective grade level. Further study with age, grade, and identification of age/grade discrepancies would be useful.

Despite these limitations, these findings provide pertinent grade-level distinctions for school-based threat assessment teams. There is a need to explore grade-level differences across additional threat characteristics and outcome variables. For example, are younger students more likely to communicate threats verbally and directly to a target? Are older students more likely to communicate threats indirectly or anonymously through social media? Similarly, researchers should investigate potential grade-level distinctions in the use of mental health services, suspensions, or legal action to ensure school-based teams are avoiding overreactions and making limited use of severe consequences. Lastly, these findings identified pivotal distinctions between threats by students in the 9th grade compared to other grades. In Virginia, almost all (99%) 9th grade students are in high school. Researchers should investigate whether grade-level configuration influences the number of reported student threats.

Notes

1. The other race/ethnicity category included students noted as Asian, mixed race, other, or unknown.
2. According to state enrollment data from the Virginia Department of Education, students in Virginia public schools, across both academic years, were categorized as 52% White, 23% Black, 14% Hispanic, and 12% other. Retrieved from https://p1pe.doe.virginia.gov/apex/f?p=180:1:15482268904411::NO:RP,1.

Acknowledgments

We thank members of the project research team including Caroline Crichlow-Ball, Brittany Crowley, Kelly Edwards, Francis Huang, Yuane Jia, Marisa Malone, and Shelby Stohlman.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This research was supported in part by Grant #NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions, or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Virginia Department of Criminal Justice Services.

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Teaching and Teacher Education 87 (2020) 102934

Contents lists available at ScienceDirect

Teaching and Teacher Education

journal homepage: www.elsevier.com/locate/tate

Student threats of violence against teachers: Prevalence and outcomes using a threat assessment approach

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HIGHLIGHTS

- Teacher threats were much less prevalent (15.5%) than peer threats.
- Approximately 30% of the threats against teachers were determined to be serious.
- Across all 226 threats directed against teachers, only 13 (5.8%) were attempted by the student.
- None of the attempted threats against teachers involved homicide and none resulted in injury.
- Discipline responses differed for threats against teachers and threats against peers.

ARTICLE INFO

Article history:
Received 14 December 2018
Received in revised form
16 July 2019
Accepted 18 September 2019
Available online 8 October 2019

Keywords:
Teacher victimization
Threat assessment
Student discipline

ABSTRACT

Internationally, student aggression against teachers is a prevalent problem in schools. Student threat assessment is an emerging violence prevention practice, but its use for threats against teachers has not been investigated. This study examined use of threat assessment for a statewide sample of student threats against teachers (n = 226) compared to threats against other students (n = 1,228). Results indicated that threats against teachers were less prevalent (15.5%) than threats against peers (84.5%). Of threats against teachers, 30% were classified as serious by the school's threat assessment team and 5.8% were attempted. Implications for school policy and practice and teacher safety are discussed.

Student aggression against teachers is a longstanding and prevalent international problem. Reports of student violence can be found in the 2000 BC clay tablets of Mesopotamia and records of medieval Europe (Aries, 1962). In the United States, there are accounts of student assaults of teachers dating to the colonial period and continuing through the 19th and 20th centuries (Crews & Counts, 1997). In recent years, surveys document concerns about student aggression against teachers across the world from New Zealand (Marsh, Williams, & McGee, 2009) to Taiwan (Chen & Astor, 2008) to Israel (Khoury-Kassabri, Astor, & Benbenishty, 2009). The most extreme form of student aggression, school homicides, has been identified as an international problem (Böckler, Seeger, Sitzer, & Heitmeyer, 2013).

The consequences of student aggression on teachers are serious. A U.S. national task force found that student aggression impairs instruction and contributes to teacher burnout (American Psychological Association [APA] Task Force on Classroom Violence Directed Against Teachers, 2011). Teacher victimization has been linked to lower teaching efficacy (e.g., disengagement), lost wages and worktime, emotional distress, and mental health problems (e.g., Chen & Astor, 2008; Espelage et al., 2013). In addition, teachers may feel blamed, powerless, or unsafe, especially if administrators do not step in to support them (McMahon, Reaves, McConnell, Peist, & Ruiz, 2017; Will, 2018). These negative outcomes for teachers are subsequently linked to low student achievement and adjustment (e.g., Espelage, et al., 2013; Gray, Wilcox, & Nordstokke, 2017; Khoury-Khassabri, Astor, & Benbenishty, 2009). In the U.S., the annual cost to teachers, parents, and taxpayers of teacher victimization is estimated to be over 2 billion dollars (APA, 2016). Given the negative consequences of student aggression against teachers, it is important to better understand how schools can mitigate teacher victimization and threats against teachers.

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https://doi.org/10.1016/j.tate.2019.102934
0742-051X/

Historically, schools have responded to student aggression with reactive and punitive approaches, primarily exclusionary discipline such as out-of-school suspension and permanent expulsion (Mitchell & Bradshaw, 2013; Skiba & Knesting, 2001). School authorities in the U.S. typically suspend students for physical acts of aggression as well as verbal aggressiveness such as classroom disruption, disrespectful statements, and defiance (Gregory & Weinstein, 2008; Rosen, 1997; Skiba, Peterson, & Williams, 1997; Vavrus & Cole, 2002). Exclusionary discipline approaches have been widely criticized as ineffective and counter-productive (APA Zero Tolerance Task Force, 2008). Studies find that they do not increase school safety or improve student behavior; on the contrary, these approaches are associated with higher rates of school failure, dropout, and juvenile court involvement (APA Zero Tolerance Task Force, 2008; Fabelo et al., 2011; Losen, Hodson, Keith, Morrison, & Belway, 2015; Losen & Martinez, 2013; Morgan, Salomon, Plotkin, & Cohen, 2014; Skiba & Knesting, 2001).

1. Student threats of violence

Studies of school homicides found that student attacks were usually preceded by threatening statements that were communicated either directly to the intended target or to third parties (O'Toole, 2000; Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). Other studies have found that authorities have been able to prevent impending attacks by investigating student threats (Daniels et al., 2009). These findings have led law enforcement and education authorities to recommend that schools implement behavioral threat assessment (sometimes referred to as "behavioral threat assessment and management") to prevent school violence (Fein et al., 2004; O'Toole, 2000; Vossekuil et al., 2002). In general, threat assessment refers to a process of identifying and evaluating threatening statements or behavior in order to determine the seriousness of the threat (assessment) and to identify what actions (interventions) might be taken to reduce the risk of violence and prevent the threat from being carried out (NASP School Safety and Crisis Response Committee, 2014). The term "threat assessment" is a shorthand reference to a process that involves both assessment and intervention. Threats, defined as any expression of intent to harm someone, are important to study for two reasons. One is that threats are often a key indicator of an impending attack and second is that threats are themselves an aggressive act that can be disturbing to teachers.

Globally, teachers and students report threatening behavior by students against teachers. In a nationally representative sample of Taiwanese students, 1% reported they had threatened a teacher (Chen & Astor, 2008). Similarly, 4% of a nationally representative sample of Israeli 7th-11th grade students reported they had threatened to hurt a teacher (Khoury-Khassabri et al., 2009). In the Otago region of New Zealand, approximately 16% of teachers from 20 schools reported student threats to be a major or moderate problem (Marsh et al., 2009). In the United States, annual prevalence rates for student threats made against teachers are approximately 7%–10% (e.g., Dinkes, Kemp, & Baum, 2009; Robers, Kemp, Rathbun, & Morgan, 2014; Zhang, Musu-Gillette, & Oudekerk, 2016). Most recently, Zhang et al. (2016) found that 10% of public school teachers reported threats of injury by students. In Virginia, a statewide survey of 12,250 high school teachers in 303 schools indicated that nearly 10% of teachers reported being threatened by a student at least once within the past school year (Cornell et al., 2016).

A recent comprehensive review of violence against teachers in the U.S. (n = 19 studies) and internationally (n = 18 studies) identified teacher, school, and community characteristics associated with threats and related forms of aggression against teachers (Reddy, Espelage, Anderman, Kanrich, & McMahon, 2018). Results of the studies synthesized for this review indicated that teachers of the most common racial group (White) in the U.S. reported more victimization than teachers of minority (Black and Latinx) backgrounds. In addition, male teachers were more likely to report threats than female teachers, and teachers in secondary schools, particularly middle schools (grades 6–8), reported more teacher victimization than teachers in elementary schools (Reddy et al., 2018). For example, using the nationally representative *Schools and Staffing Survey* (SASS) 2011-12 data set, Huang and colleagues found that across approximately 24,000 teachers from 4,600 schools in the U.S., elementary teachers were less likely to report receiving a threat than secondary teachers. In addition, teachers working in schools with a greater percentage of non-White students and in communities with greater levels of poverty experienced higher rates of aggression (e.g., Berg & Cornell, 2016; Huang, Eddy, & Camp, 2017). Finally, special education teachers are more likely to report threats of violence than their general education counterparts (Tiesman, Konda, Hendricks, Mercer, & Amandus, 2013).

In addition to teacher and school characteristics associated with threats against teachers, prior research has also identified several student characteristics associated with making threats of violence in schools. Prior research indicates that the majority of threats involve male students (e.g., Khoury-Khassabri et al., 2009; Losen et al., 2015; Skiba, Michael, Nardo, & Peterson, 2002;Strong & Cornell, 2008). For example, in a study of disciplinary records from 11,000 middle school students in 19 middle schools in a large urban school district, male students made more threats that resulted in an office referral than female students (Skiba et al., 2002). Khoury-Khassabri et al. (2009) reported that among 16,604 Israeli secondary students, male students reported threatening teachers at a greater rate than female students. In addition, students receiving special education services make significantly more threats than their peers in general education (e.g., Kaplan & Cornell, 2005; Strong & Cornell, 2008). Students with a history of violent behavior or discipline problems may also be more likely to engage in violence in schools (e.g., Reeves & Brock, 2018). While these studies provide information about the demographic characteristics of students who made threats in schools, with the exception of Khoury-Khassabri et al. (2009), these studies did not disaggregate threats against teachers from threats against others in the school and none looked at the nature of the threat or school response. The present study seeks to extend the findings of these studies by understanding how threats of violence against teachers compare to those directed against other students in terms of the characteristics of the student making the threat, nature of the threat, school responses, and how often such threats were carried out.

2. Threat assessment

Threat assessment was initially developed in law enforcement to protect public figures (Borum, Fein, Vossekuil, & Berglund, 1999), but after a series of school shootings in the 1990s, it was recommended for use in schools (e.g., O'Toole, 2000; Vossekuil et al., 2002). Subsequently, several models of threat assessment were developed (e.g., Dallas Threat of Violence Risk Assessment, Van Dyke & Schroeder, 2006; Salem-Keizer System, Van Dreal, 2016; Virginia Student Threat Assessment Guidelines [VSTAG], Cornell and Sheras (2006) renamed the Comprehensive School Threat Assessment Guidelines [CSTAG] in 2018; Cornell, 2018). An overarching emphasis of threat assessment is to make a careful assessment of student threats and respond according to the seriousness of the threat (NASP School Safety and Response

Committee, 2014). For example, the CSTAG model of threat assessment emphasizes that teams recognize developmental differences in youth and make distinctions between transient threats that reflect no sustained intent to harm others and substantive threats that indicate a serious intent to harm others (Cornell, 2018).

A primary goal of threat assessment is to determine *why* a student made a threat or engaged in threatening behavior and to identify interventions to address the underlying problem that motivated the threat (Cornell, 2018; NASP School Safety and Response Committee, 2014; National Threat Assessment Center [NTAC], 2018). A threat assessment approach stresses the importance of responses that are appropriate to the severity of the threat, considers the underlying motivation for the threat, and de-emphasizes the use of suspension and other exclusionary discipline actions in preventing violence (e.g., NASP School Safety and Response Committee, 2014; NTAC, 2018). Thus, threat assessment takes a more measured and differentiated approach than a zero tolerance philosophy that treats all disciplinary infractions the same. Because threat assessment is a marked change from the zero tolerance approaches adopted by most schools in the U.S. in the 1990s, (APA Zero Tolerance Task Force, 2008), it is important to understand how school authorities using a threat assessment approach respond to threats of violence directed against teachers and whether they respond differently to student threats against teachers than to threats against peers. For example, are threat assessment teams more likely to take law enforcement action or impose exclusionary discipline practices when students threaten teachers compared to their peers?

When a student threatens to harm a teacher, it is important first to assess whether a student has a serious intention to harm or is just angry and expressing frustration. This assessment identifies appropriate interventions that schools can take to reduce the risk of violence (NTAC, 2018). In cases that are not judged to be serious, schools may respond with disciplinary measures appropriate to the misbehavior and also consider conflict resolution, mental health counseling, or other interventions that are responsive to the student's needs. In more serious cases, school authorities must take protective actions applicable to the threat situation, including law enforcement investigation and response. It is important to note that student threat assessment is used to respond specifically to student threats of violence, not all forms of student misbehavior.

When threat assessments are conducted in schools, a school-based interdisciplinary team with expertise in administration, instruction, mental health, and law enforcement investigates reported threats of violence. When a threat is reported, the team conducts an assessment that usually starts with interviewing all relevant witnesses as well as the student who made the threat. The assessment is concerned first with finding out exactly what was said or done and in what circumstances the threat occurred. After this information is gathered, the team evaluates what the student meant and how others interpreted the student's statement or behavior. This systematic approach allows teams to distinguish serious threats in which a person poses a threat of violence from non-serious threats in which there is little risk of the threat being undertaken (Fein et al., 2004; Vossekuil et al., 2002).

In order to determine whether a threat poses a serious risk of being carried out, a team considers the context in which the threat is made. This includes the nature of the threat, how the threat was communicated, the intended target, and any history of violence of the perpetrator. For example, a threat of homicide such as "I'm going to shoot you" or the presence of a weapon, would be perceived as more serious than a threat of assault (e.g., hitting, fighting, punching) because of the potential for deadly harm to the intended target. A threat that is merely an expression of anger or frustration is less serious than a threat that communicates a genuine intent to harm someone. It is important to clarify that all threats must be taken seriously in the sense that they should be investigated, but that a serious threat is one in which the person is judged to pose a threat of violence as opposed to merely communicating hostile feelings without intent to harm someone (Fein et al., 2004; NTAC, 2018).

Any threat of a teacher is considered a serious violation of school rules that is taken as a serious matter, but the threat assessment team considers the seriousness of the threat in the narrow sense of whether there is a serious risk that the threat will be carried out. Threat assessment teams try to avoid two opposing errors: over-reacting to threats that are not serious and under-reacting to threats that pose a serious risk of harm (Cornell, 2018; O'Toole, 2000). A previous study found that threat assessment teams made reliable judgements of the seriousness of a threat, and that threats judged to be serious were much more likely to be attempted than threats judged not to be serious (Burnette, Datta, & Cornell, 2017).

Although threat assessment may be followed by a disciplinary consequence depending on the nature and seriousness of the threat, the threat assessment process is not a disciplinary referral or consequence. Rather, threat assessment is a safety procedure intended to reduce the risk of harm, which is the first priority in any threatening situation. It may be followed by a disciplinary process and can inform the disciplinary decision. In general, if a student's threat is judged to be serious, the disciplinary consequences would be greater than if it was not judged to be serious. Threats made against adults (e.g., teachers) are typically less common than threats against students and considered a serious disciplinary infraction in Virginia schools (Virginia Department of Education, 2016).

There is broad support for using threat assessment in schools. A recent review of state legislation found that 39 states in the U.S. provide threat assessment resources for schools, five states encourage threat assessment, and one state (Virginia) mandates threat assessment teams for each public school (Woitaszewski, Crepeau-Hobson, Conolly, & Cruz, 2017). Since the 2018 school shooting in Parkland, Florida, more states (e.g., Florida, Texas, and Maryland) have moved to implement threat assessment in their schools. The U.S. federal government's STOP School Violence Act of 2018 bill for the first time allocated funding for school threat assessment training (https://www.govtrack.us/congress/bills/115/hr4909/summary). In Germany, Leuschner et al. (2017) developed a threat assessment model, Networks Against School Shootings, derived in part from CSTAG. The Zurich model of threat assessment is used in Switzerland (Endrass et al., 2011). In addition, there are professional associations for threat assessment in the U.S. (https://www.atapworldwide.org/default.aspx), Europe (https://www.aetap.eu/), Canada (https://catap.ca/), and Asian Pacific (https://www.apatap.org/). These associations are concerned with threat assessment across all settings, including schools.

2.1. Positive outcomes of a threat assessment approach

Studies have found that few threats are carried out in schools using threat assessment (e.g., Cornell et al., 2004; Cornell et al., 2017; Strong & Cornell, 2008). For example, Strong and Cornell (2008) reported that of 209 threat assessments conducted in one urban school division, 77 of the threats (37%) were considered serious by threat assessment teams and none of the threats were carried out. More recently, a statewide survey study documented the characteristics of 1,865 threat cases evaluated by threat assessment teams in 785 Virginia public schools over the course of an academic year and found that, although approximately a third of the cases were considered serious, only 3.3% of the 1,865 threats

were attempted or carried out (Cornell et al., 2017).

A series of studies have examined outcomes associated with use of CSTAG. These studies have found that schools using CSTAG have lower use of school suspension and legal action compared to those that do not (e.g., Cornell, Allen, & Fan, 2012; Cornell, Gregory, & Fan, 2011; Cornell, Sheras, Gregory, & Fan, 2009; Nekvasil & Cornell, 2015). Two studies also noted reductions in long-term suspensions and other punitive disciplinary actions. Cornell, Allen, and Fan (2012) reported that schools randomly assigned to be trained to use threat assessment reported students were more likely to receive counseling services and less likely to receive alternative placements or long-term suspension than schools in the control group who did not use threat assessment. Similarly, long term suspension rates and bullying prevalence was lower in the 23 high schools trained to use threat assessment compared to 26 schools not trained to use threat assessment (Cornell, Gregory, & Fan, 2011).

Studies have also found more positive school climates in schools using CSTAG. For example, a 2015 study compared teacher perceptions of school safety in Virginia middle schools using CSTAG to schools using other threat assessment guidelines or not using threat assessment (Nekvasil & Cornell, 2015). Teachers in schools using CSTAG reported feeling more physically safe at school, perceived their school as having adequate safety and security, and were less likely to worry about someone committing a shooting at their school. Additionally, teachers reported greater perceptions of physical safety at schools that used CSTAG for more years. Similarly, ninth grade students reported less bullying, and more positive perceptions of school climate in schools using CSTAG (Cornell, Sheras, Gregory, & Fan, 2009). Taken together, these studies support the benefits of a threat assessment approach to improving school safety, including improving school climate and reducing exclusionary disciplinary action.

3. Current study

In 2013, Virginia became the first state to mandate the use of threat assessment in public schools serving Kindergarten through 12th grades (K-12). However, to our knowledge, there are no studies of the use of threat assessment specifically for threats against teachers. Threats against teachers are a great concern because they represent a major disciplinary violation and have a substantial potential impact on the teacher's well-being. Although students frequently threaten their peers in the course of everyday bantering, arguments, and conflicts (Nekvasil & Cornell, 2015), a threat against a teacher is less common and represents a blatant act of defiance and disrespect for the teacher's authority. Threats against teachers are a greater disruption of the learning environment and cannot be ignored. Consequently, it is important to examine how schools using this relatively new method of threat assessment respond to student threats against teachers in comparison to student threats against their peers. The present study extends the findings of previous studies of teacher aggression and threat assessment by addressing two general research questions:

(1) How do student threats against teachers differ from threats against peers?
(2) How do student threats against teachers differ from threats against peers in school response and outcome?

4. Methods

4.1. Sample

The initial sample consisted of 1,865 records of threat assessment cases reported by school administrators in a statewide safety survey conducted by the state. These cases include those threats that were reported to school authorities and were given a threat assessment, not the entirety of all threats made in schools. Therefore, we could not compare unreported threats to reported threats. Specifically, this study compared the 226 threats of violence against teachers with 1,228 threats against peers reported during the 2014-15 school year. The excluded cases involved threats directed against non-teaching school staff (4.3%), multiple targets (4.3%), administrators (3.4%), or unidentified/other targets (5.3%).

The cases occurred in 673 public schools, including 405 elementary, 197 middle, and 183 high schools. The schools were distributed across urban (147), suburban (276) and rural/small town (245) settings. School enrollments ranged from 76 to 2,926 ($M = 823$, $SD = 491$). The demographics for these 673 schools were 51.5% male with a racial/ethnic distribution of 50.1% White, 22.6% Black, 15.4% Hispanic, 6.6% Asian and 5.4% Other (e.g., two or more races, Native American, Pacific Islander). Approximately 39.3% of the students were eligible for free or reduced-price meals (FRPM) and 12.5% of the students received special education services. Table 1 describes the demographics of the 1,454 students who made threats against teachers or peers.

4.2. Measures

Virginia has a mandated school safety audit administered by the Virginia Department of Criminal Justice Services. As part of this audit, schools responded to an annual survey that asked about

Table 1
Threat case descriptive statistics.

	Student	Teacher	Total Cases
	n = 1,228	n = 226	N = 1,454
School Type			
Elementary	602 (49.0%)	98 (43.4%)	700 (48.1%)
Middle	378 (30.8%)	67 (29.6%)	445 (30.6%)
High	246 (20.0%)	61 (27.0%)	307 (21.1%)
Male	901 (73.4%)	162 (71.7%)	1063 (73.1%)
Female	247 (20.1%)	51 (22.6%)	298 (20.5%)
SPED Identified	375 (30.5%)	106 (46.9%)	481 (33.1%)
nonSPED	820 (66.8%)	116 (51.3%)	936 (64.4%)
History of Discipline Referral[a]	665 (54.2%)	152 (67.3%)	817 (56.2%)
Race/Ethnicity[b]			
White	658 (53.6%)	98 (43.4%)	756 (52%)
Black	361 (29.4%)	76 (33.6%)	437 (30.1%)
Hispanic	75 (6.1%)	29 (12.8%)	104 (7.2%)
Asian	34 (2.5%)	8 (3.5%)	42 (2.9%)
Mixed/Other	74 (6.0%)	14 (6.2%)	88 (6.1%)
Threat Type			
Battery	231 (18.8%)	66 (29.2%)	297 (20.4%)
Homicide	308 (25.1%)	44 (19.5%)	352 (24.2%)
Weapon in Possession	68 (5.5%)	4 (1.8%)	72 (5.0%)
Communication Method[c]			
Direct	813 (66.2%)	137 (60.6%)	950 (65.3%)
Indirect	288 (23.5%)	56 (24.8%)	344 (23.7%)
Implicit	126 (10.3%)	33 (14.6%)	159 (10.9%)
Serious Threat[d]	336 (27.4%)	68 (30.1%)	404 (27.8%)
Attempted	39 (3.2%)	13 (5.8%)	52 (3.6%)
School Response			
Out-of-school Suspension	528 (43.0%)	124 (54.9%)	652 (44.8%)
Law Enforcement Action	50 (4.1%)	7 (3.1%)	57 (3.9%)
Placement Change	144 (11.7%)	50 (22.1%)	194 (13.3%)
Mental Health Services	557 (45.4%)	97 (42.9%)	52 (3.2%)

Note. Column percentages may exceed 100% because multiple categories could be selected.
[a] Referrals unknown or not reported in 78 cases.
[b] Race not indicated in 27 cases.
[c] Communication method not indicated in 1 case.
[d] Seriousness not indicated in 2 cases.

threat cases for the 2014-15 academic year. For each case, schools reported student grade level, gender, race/ethnicity, special education status, and history of discipline referrals (meaning that the student was referred by a staff member to a school administrator for misbehavior). Schools also reported the presence/absence of several relevant threat characteristics. These included the nature of the threat: (1) threat of battery (e.g., hitting, fighting, punching); (2) threat of homicide (e.g., saying "I'm going to kill you"); and (3) threat with weapon possession (either student had possession of a weapon or had a weapon on school property) and (4) how the threat was communicated (directly to the target, indirectly to a third party, or implicitly expressed through a concerning behavior for each case). Responses indicated whether the target of the threat was a teacher or student. Threat assessment cases included any case for which a threat was reported regardless of where it occurred or whether it was posted to the Internet.

Schools also reported outcomes including how the threat assessment team classified the seriousness of the case and whether the threat was attempted or not. Schools used a variety of systems to classify their threats; therefore, cases that represented the least serious category within the school's classification system (e.g., transient, low) were classified as "not serious" and cases that were classified within a school's classification at higher levels (e.g., substantive, medium, high, imminent) were combined into a "serious" category. The lowest category in these systems is used for threats where the student is judged not to have an intent to carry out the threat and may have been joking or expressing frustration. These systems use the other categories to indicate progressively greater risk, but since they are not well-aligned with one another, we elected to use a dichotomous distinction. This distinction has practical significance since we expect the greatest difference in school response to be between threats deemed not to be serious and threats that are judged to be serious to some degree. (See Burnette et al., (2017) for review of the serious/not serious delineation). Because so few threats (<0.8%) were reported to be carried out, we combined them with attempted threats (2.8%). Finally, schools reported on their threat assessment team's response(s) to the threat, which included whether the student received an out-of-school suspension (OSS), placement change, or mental health services (i.e., in school counseling, referral for out-of-school mental health services or evaluation). Because only 3.9% of cases involved any type of law enforcement action, (i.e., arrest, incarceration in juvenile detention, and law enforcement charges), these were combined into a single variable for analysis.

4.3. Data analysis

To answer research question one, retrospective logistic regressions modeled the odds that a threat would target a peer versus a teacher based on student demographics (i.e., grade, gender, race, special education status, history of discipline referral) and threat characteristics (i.e., battery threat, homicide threat, weapon possession, how the threat was communicated). To answer research question two, a second set of logistic regressions modeled how the threat target (peer versus teacher) was associated with school responses or outcomes (i.e., threat seriousness, attempt, OSS, mental health services, placement change, law enforcement action) after controlling for student demographics and threat characteristics. All analyses used clustered adjusted standard errors to account for the nesting of cases within schools (type = complex option in Mplus) and full information maximum likelihood (FIML) estimation to accommodate missing data for gender (6.4%), history of discipline referral (5.4%), and special education status (2.5%).

5. Results

5.1. Research question 1: how do student threats against teachers differ from threats against peers?

Of the 1,454 cases of threats against teachers and students, the vast majority (84.5%) student threats were directed against their peers (Table 1). Of the students who received a threat assessment in the present study, approximately 33% received special education services. Students receiving special education services made 30.5% of threats against peers and 46.9% of threats against teachers. Students receiving special education services were relatively more likely than students in general education to threaten a teacher ($OR = 1.74$, $p < .001$; Table 2). Of the 1,454 threat cases, 52% were made by White students, 30% were made by Black students, and 7.2% were made by Hispanic students. Of the threats against peers, 6.1% were made by Hispanic students while 12.8% of the threats against teachers were made by Hispanic students ($OR = 3.11$, $p < .001$). Students with a previous history of discipline referral made 54.2% of threats against peers and 67.3% of threats against teachers ($OR = 1.85$, $p < .001$). Threats directed against teachers were relatively more likely to involve a threat of battery ($OR = 1.52$, $p < .05$) and relatively less likely to involve weapon possession ($OR = 0.29$, $p < .285$) or be directly communicated ($OR = 0.57$, $p < .05$) than threats against peers.

5.2. Research question 2: how do student threats against teachers differ from threats against peers in school response and outcome?

Of threats to teachers, 68 (30.1%) were considered serious by threat assessment teams (Table 1). No differences existed in the odds that a threat against a teacher would be classified as more serious by school teams than a threat against a peer after controlling for student and threat characteristics ($OR = 0.98$, $p = .93$; Table 2). Of the threats classified as serious by teams, the majority involved middle or high school students (60.4%), male students (75%), and/or students with a prior history of discipline referral (75%; Table 3).

Table 2
Logistic regression odds ratios for demographics and threat characteristics.

Predictors	Teacher Target		
	OR	95% LB	95% UB
Grade: Elementary[a]	1.056	0.74	1.507
Grade: High[a]	1.114	0.978	1.269
Female[b]	0.812	0.591	1.116
SPED[c]	1.74 ***	1.324	2.287
History of Discipline Referral[d]	1.845 ***	1.36	2.503
Race: Black[e]	1.317	0.962	1.804
Race: Hispanic[e]	3.105 ***	1.92	5.023
Race: Asian[e]	1.958	1.031	3.718
Race: Other[e]	0.91	0.548	1.512
Threat Nature: Battery	1.518 *	1.097	2.1
Threat Nature: Homicide	0.821	0.601	1.122
Weapon in Possession	0.285 *	0.117	0.695
Threat Communicated: Indirectly[f]	0.685	0.441	1.064
Threat Communicated: Directly[g]	0.574 *	0.386	0.852

Note. n = 1,454 cases in 673 schools; OR = odds ratio, LB = lower bound, UB = upper bound, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.
[a] Middle as reference group.
[b] Male as reference group.
[c] Identified as non-SPED as reference group.
[d] No history of referrals as reference group.
[e] White as reference group.
[f] Direct or implicit as reference group.
[g] Indirect or implicit as reference group

Table 3
Serious and attempted threats against teachers.

	Serious	Attempted
	n = 68	n = 13
School Type		
Elementary	27 (39.7%)	10 (76.9%)
Middle	19 (27.9%)	1 (7.7%)
High	22 (32.4%)	2 (15.4%)
Male	51 (75%)	9 (69.2%)
Female	12 (17.6%)	3 (23.1%)
SPED Identified	34 (50%)	8 (61.5%)
nonSPED	33 (48.5%)	5 (38.5%)
History of Discipline Referral	51 (75%)	7 (77.8%)
Race/Ethnicity		
White	32 (47.1%)	3 (23.1%)
Black	23 (33.8%)	9 (69.2%)
Hispanic	6 (8.8%)	1 (7.7%)
Asian	1 (1.5%)	0 (0%)
Mixed/Other	6 (8.8%)	0 (0%)
Threat Type		
Battery	25 (36.8%)	9 (69.2%)
Homicide	13 (19.1%)	0 (0%)
Weapon in Possession	2. (2.9%)	4 (0%)
Communication Method		
Direct	47 (69.1%)	11 (84.5%)
Indirect	15 (22.1%)	0 (0%)
Implicit	6 (8.8%)	2 (15.4%)
School Response		
Out-of-school Suspension	53 (77.9%)	11 (84.6%)
Law Enforcement Action	5 (7.4%)	2 (15.4%)
Placement Change	27 (39.7%)	11 (84.6%)
Mental Health Services	36 (52.9%)	8 (61.5%)

Note. Column percentages may exceed 100% because multiple categories could be selected.

5.2.1. Threats attempted against teachers

Students attempted to carry out only 13 (5.8%) threats against teachers and 39 (3.2%) threats against students (Tables 1 and 3). Overall, no significant difference existed in the rate of threats attempted against teachers compared to threats attempted against a peer ($OR = 1.31$, $p = .53$; Table 4). Of the 13 threats attempted against teachers, nine were considered serious and four had not been considered serious by threat assessment teams. The four non-serious threats were all threats of battery; three were made by elementary school students and one was made by a high school student.

Serious threats against teachers were more frequently attempted than non-serious threats (X^2 (1) = 10.1, $p = .002$). Seven of the nine serious, attempted threats against teachers were made by elementary school students, one was made by a middle school student, and one by a high school student. Seven were made by students receiving special education services, seven were made by students with a history of discipline referral, and seven were made by male students. Five of the nine serious, attempted threats were threats of battery and none of the threats were threats of homicide. The other four threats were unspecified in nature (e.g., "I'm going to hurt you"). While teams reported that none of the *threats* involved the possession of a weapon, students were reported using opportunistic weapons (i.e., scissors, desks, stapler, pencil) while attempting the threat in four cases. Seven of the attempted threats were communicated directly to the target. Importantly, no injuries were reported.

5.2.2. School responses to threats against teachers

Threats against teachers were relatively more likely to result in OSS ($OR = 1.56$, $p < .05$) and placement changes ($OR = 2.20$, $p < .001$) than threats against peers after controlling for student and threat characteristics, seriousness classification, and outcome (Table 5). No difference existed in the odds that a threat against a teacher would result in mental health services ($OR = 0.91$, $p = .55$) or law enforcement action ($OR = 0.87$, $p = .75$) than a threat against a student after controlling for student and threat characteristics. Students receiving special education services who threatened teachers received disciplinary consequences and referral for mental health services at the same rate as their non-special education peers (X^2_{OSS} (1) = 1.02, $p = .311$; $X^2_{LEAction}$ (1) = 0.256, $p = .613$; $X^2_{MHReferral}$ (1) = 0.248, $p = .618$). However, they were placed in alternative placements at higher rates ($X^2_{PlacementChange}$ (1) = 6.83,

Table 4
Logistic regression odds ratios for threat assessment outcomes.

Outcomes	Determined to be Serious Threat[a]			Threat was Attempted[b]		
Predictors	OR	95% LB	95% UB	OR	95% LB	95% UB
Grade: Elementary[c]	0.558 ***	0.417	0.746	1.488	0.689	3.217
Grade: High[c]	1.121	1.008	1.247	1.299	0.996	1.695
Female[d]	1.03	0.784	1.354	0.707	0.394	1.27
SPED[e]	1.264	1.005	1.59	1.406	0.854	2.314
History of Discipline Referral[f]	2.371 ***	1.826	3.078	1.729	0.882	3.386
Race: Black[g]	0.839	0.651	1.08	1.132	0.677	1.893
Race: Hispanic[g]	0.831	0.522	1.323	0.489	0.131	1.827
Race: Asian[g]	0.557	0.276	1.122	0.711	0.134	3.766
Race: Other[g]	1.054	0.726	1.529	0.431	0.115	1.612
Threat Nature: Battery	1.526	1.152	2.022	3.965 ***	2.254	6.974
Threat Nature: Homicide	1.392	1.076	1.801	0.346	0.122	0.985
Weapon in Possession	6.341 ***	3.978	10.107	3.153 *	1.235	8.049
Threat Communicated: Indirectly[h]	1.002	0.65	1.544	0.085 **	0.022	0.337
Threat Communicated: Directly[i]	0.911	0.61	1.359	0.581	0.232	1.452
Teacher Target[j]	0.983	0.72	1.343	1.306	0.648	2.629

Note. n = 1,454 cases in 673 schools; OR = odds ratio, LB = lower bound, UB = upper bound, *$p < .05$, **$p < .01$, ***$p < .001$.
[a] Non-serious classification as reference group
[b] No attempt as reference group.
[c] Middle as reference group.
[d] Male as reference group.
[e] Identified as non-SPED as reference group.
[f] No history of referrals as reference group.
[g] White as reference group.
[h] Direct or implicit as reference group.
[i] Indirect or implicit as reference group.
[j] Student target as reference group

Table 5
Logistic regression odds ratios for school responses.

Predictors	School Response											
	OSS			LE Action			Placement Change			Mental Health Referral		
	OR	95% LB	95% UB	OR	95% LB	95% UB	OR	95% LB	95% UB	OR	95% LB	95% UB
Grade: Elementary [a]	0.458 ***	0.344	0.611	0.100 ***	0.039	0.257	0.510 **	0.347	0.749	1.359	1.038	1.779
Grade: High[a]	1.019	0.902	1.15	1.131	0.928	1.377	1.072	0.936	1.229	1.032	0.928	1.148
Female[b]	1.035	0.796	1.344	1.051	0.537	2.054	1.350	0.906	2.012	0.877	0.691	1.113
SPED[c]	0.930	0.736	1.175	0.854	0.476	1.534	1.188	0.852	1.658	0.967	0.78	1.198
History of Discipline Referral[d]	1.916 ***	1.504	2.441	1.174	0.660	2.089	1.392	1.006	1.926	1.406 **	1.132	1.748
Race: Black[e]	0.967	0.753	1.241	0.530	0.266	1.057	1.351	0.959	1.904	0.659 **	0.527	0.826
Race: Hispanic[e]	0.750	0.494	1.139	2.107	0.991	4.480	1.447	0.81	2.585	0.753	0.524	1.081
Race: Asian[e]	0.334	0.155	0.717	0.574	0.068	4.839	1.021	0.374	2.789	1.816	1.057	3.121
Race: Other[e]	0.910	0.594	1.394	0.822	0.332	2.032	1.223	0.744	2.008	0.619 *	0.439	0.872
Threat Nature: Battery	1.020	0.669	1.136	1.478	0.759	2.879	0.904	0.618	1.321	0.736 *	0.57	0.95
Threat Nature: Homicide	0.871	2.769	8.198	1.252	0.647	2.421	0.998	0.71	1.403	1.219	0.956	1.555
Weapon in Possession	4.764 ***	0.769	1.352	5.663 ***	2.377	13.493	3.062 **	1.646	5.695	1.425	0.891	2.282
Threat Communicated: Indirectly[f]	1.711 *	1.145	2.558	0.900	0.374	2.164	0.706	0.434	1.151	0.929	0.654	1.319
Threat Communicated: Directly[f]	1.517	1.054	2.182	0.873	0.392	1.941	0.620	0.403	0.954	0.725	0.53	0.992
Serious Threat[g]	4.779 ***	3.718	6.142	5.597 ***	2.879	10.882	5.279 ***	3.771	7.39	2.591 ***	2.048	3.278
Threat Attempted[h]	4.249 **	1.856	9.728	5.960 ***	2.608	13.620	3.966 ***	2.195	7.166	0.526	0.281	0.983
Teacher Target[i]	1.562 *	1.148	2.125	0.868	0.412	1.827	2.197 ***	1.556	3.102	0.907	0.692	1.189

Note. n = 1,454 cases in 673 schools, OR = odds ratio, LB = lower bound, UB = upper bound, * p < .05, ** p < .01, *** p < .001.
[a] Middle as reference group.
[b] Male as reference group.
[c] Identified as non-SPED as reference group.
[d] No history of referrals as reference group.
[e] White as reference group.
[f] Implicit as reference group.
[g] Non-serious classification as reference group.
[h] No attempt as reference group.
[i] Student target as reference group

$p = .009$). In the serious, attempted threats, schools used a combination of responses to each threat: OSS in seven cases, legal action in one case, placement change in eight cases, and mental health services in five cases.

6. Discussion

The purpose of the present study was to examine the use of threat assessment in response to threats against teachers. Based on a statewide sample of 1,454 threat assessment cases reported by schools on the 2014–2015 annual school safety audit survey, threats against teachers (15.5%) were much less prevalent than threats against peers. Approximately 30% of the threats against teachers were judged to be serious threats by the school's threat assessment team, with the others judged to be expressions of anger or frustration that the student did not intend to carry out. Across all 226 threats directed against teachers, only 13 (5.8%) were attempted by the student. None of the attempted threats involved homicide and none resulted in injury.

6.1. Characteristics of students making threats

Teacher threats could be distinguished from peer threats. Consistent with prior research (e.g., Cornell et al., 2017), male students in the present study made more threats than their female counterparts. This difference is consistent with gender differences in discipline referrals generally reported in the literature (e.g., Skiba et al., 2014). However, male and female students who made threats in the present study were equally likely to threaten a teacher.

Results indicated no difference in the likelihood that racial/ethnic groups other than Hispanic students would threaten a teacher compared to a peer. While relatively few (7.2%) of the 1,454 threats were made by students of Hispanic ethnicity, these threats were relatively more likely to be made against teachers than their peers. The challenges facing Hispanic students in the public school setting are well-documented (e.g., Gibson, 2002; Scribner, 1999; Wainer, 2006) and it is possible that Hispanic students who made threats did so out of frustration due to cultural or language differences with teachers. Culturally responsive pedagogy (e.g., Scribner, 1999; Wlodkowski & Ginsberg, 1995) may support the development of rapport between students and teachers and subsequently reduce aggressive behavior against teachers. In addition, teachers who use restorative practices appear to have better relationships with their minority students (Gregory, Clawson, Davis, & Gerewitz, 2016).

According to fall membership and special education child counts (Virginia Department of Education, 2018), approximately 13% of students statewide receive special education services, yet 33% of the students referred for threat assessment in the present study received special education services. This finding is consistent with prior reports that students receiving special education services made threats at a disproportional rate compared to students not identified as receiving special education services (e.g., Cornell et al., 2004; Kaplan & Cornell, 2005). The results of the present study expand our understanding of whom is being threatened. The odds were 1.75 times greater that a student receiving special education services would threaten a teacher compared to a peer. One explanation for this disproportionality may be that a threat often is the result of a student's difficulty dealing with frustration (Fein et al., 2004; Vossekuil et al., 2002). Students receiving special education services are likely to have experienced difficulties in learning that generate frustration and/or have emotional/behavioral disabilities that may contribute to poor tolerance of frustration (Bowman-Perrott et al., 2013). Students receiving special education services may have more experiences of error and correction in learning that might stimulate frustration. It is also possible that students receiving special education services were identified for services in part because of externalizing/aggressive behaviors and

these difficulties could lead to threats. For example, Kaplan and Cornell (2005) found that students with an emotionally disturbed (ED) classification made disproportionally more threats than other groups (i.e., learning disability, other health impaired).

In the present study, students receiving special education services who threatened teachers received disciplinary consequences at the same rate as their non-special education peers. This is a notable finding given the national concern in the United States about disproportionate punishment of students receiving special education services (Losen, Hodson, Ee, & Martinez, 2014). However, students receiving special education services who threatened teachers were placed in alternative placements at higher rates. This finding might be expected because these alternative schools are specifically designed to support students who have difficulty learning and many serve students receiving special education services. A threat incident may indicate that a student is having substantial difficulties in learning in a general education setting. Thus, threat assessment can be a prelude to a special education evaluation or a reassessment of a student receiving special education services.

A history of discipline problems is considered a risk factor or early warning sign for student aggression (Reeves & Brock, 2018). The majority (56%) of students receiving a threat assessment in the present study had prior discipline referrals. Threats made by students with a history of discipline referrals were more often directed against a teacher (67%) than a peer (54%). One possible explanation is that students with a history of discipline referrals are more likely to have conflicts with teachers and make threatening statements. For example, some of these students might be resistive to school authority or more expressive of anger in a way that generates both disciplinary referrals and threat assessment referrals. Notably, threats against teachers were more frequently classified as serious when they were made by students with a history of discipline referrals. Of the 12 attempted threats against teachers, 11 were made by students with a history of discipline referral. Thus, threat assessment teams appeared to appropriately consider this early warning sign when determining the seriousness of the threat.

6.2. Characteristics of threats made against teachers

Threats against teachers more often involve a threat of battery ($OR = 1.5$) and less often involved weapon possession ($OR = 0.29$) than threats against peers. While the majority of threats against teachers were made directly (60.6%), the odds were lower that a student would make a direct threat (rather than implicit or indirect) against a teacher compared to a peer ($OR = 0.57$). A direct threat to a teacher may involve impulsivity, anger, and poor self-control. An example of an indirect threat against a teacher would be a student saying something to a peer that is interpreted as a threat against a teacher, and that student subsequently reports it to a school authority. Previous research indicates that students threaten one another relatively frequently (Nekvasil & Cornell, 2012) and may not report the threat unless it seems serious. On the other hand, teachers may be more likely to report a threat by a student than a student is to report a threat by a peer.

6.3. Threat outcomes

Only 28% of cases were classified as serious, with no difference between teacher and student threats. Similarly, Cornell et al., (2017) found that threats against teachers were not more likely to be deemed serious than threats against others in the school community (e.g., students, staff). A threat assessment requires consideration of the full circumstances under which the threat was made. Therefore, teams consider a variety of factors in determining whether a threat should be classified as serious or not serious (e.g., Cornell & Sheras, 2006). Similar to prior studies (Cornell et al., 2004, Burnette, Datta, & Cornell, 2017), the factors most strongly associated with a threat against a teacher being considered serious were that it was made by a secondary student, that the student had a history of discipline referrals, and that the threat included the possession of a weapon.

Importantly, and consistent with prior research (e.g., Burnette, Datta, & Cornell, 2017; Cornell, Gregory, & Fan, 2011; Cornell et al., 2004; Strong & Cornell, 2008), threats were not likely to be attempted, with rates of 5.3% for teachers and 3.2% for students. Burnette et al. (2017) found in a sample of 844 student threat cases, in which the threat assessment team used the CSTAG model to classify threat seriousness, that threats considered to be substantive (serious) were 36 times more likely to be attempted than threats classified as transient (not serious). Similarly, the present study found that for threats against teachers in particular, 13% of serious threats were attempted compared to 2.5% of non-serious threats. While these represent low attempt rates, any threat against a teacher represents a serious concern and should be addressed because of the damage and injury that can result if a threat is acted upon. Therefore, a threat assessment team's appropriate classification of a threat represents an important contribution to a school's ability to prevent potential violence against teachers.

6.4. School responses

Although school teams did not differ in how often they classified a teacher threat as serious compared to a peer threat, school disciplinary responses differed between groups. As expected, 55% of students who threatened teachers received an out-of-school suspension compared to 43% of students who threatened peers. Students who threatened teachers also received a change in placement (22%) more often than students who threatened peers (12%). One responsibility of a teacher is to maintain a classroom environment that maximizes the potential for student learning (Dicke, Elling, Schmeck, & Leutner, 2015) and threats against teachers are disruptive to the learning environment because they convey a lack of respect for the teacher's leadership in the classroom. Therefore, any threat directed against a teacher is generally considered a disciplinary violation deserving of consequences. It is possible that school administrators are more inclined to implement harsher disciplinary consequences when a threat is aimed at a teacher than at a student regardless of the perceived seriousness of the threat because threats to a teacher represent a more serious disruption to student learning. However, in many cases, the disciplinary consequence even for a threat against a teacher did not involve out of school suspension. It should be noted that a threat assessment informs the disciplinary process but does not encompass all of the factors that educators consider in making disciplinary decisions.

Additionally, threat assessment teams differed in how they responded to serious threats compared to non-serious threats. Consistent with a prior study (Burnette, Datta, & Cornell, 2017), the disciplinary consequences were greater than when the threat was determined to be serious. Serious threats were significantly more likely to result in out of school suspension ($OR = 4.8$), law enforcement action ($OR = 5.6$), placement change ($OR = 5.3$), and mental health referral ($OR = 2.6$) than those classified as not serious. This indicates that, regardless of whether the threat was directed against a teacher or peer, threat assessment teams used a nuanced approach that considered the context, severity, and nature of the threat when they administered disciplinary consequences. This finding is noteworthy in light of concerns about the

effectiveness of zero tolerance policies (APA Zero Tolerance Task Force, 2008) and exclusionary discipline approaches, (Reeves & Brock, 2018; U.S. Department of Justice and U.S. Department of Education, 2014).

7. Implications

Previous research suggests a positive school climate has the potential to mitigate teacher victimization (e.g., Berg & Cornell, 2016; Chen & Astor, 2008; Gray et al., 2017; Gregory, Cornell, & Fan, 2012;Huang et al., 2017; Khoury-Khassabri et al., 2009; Reddy et al., 2018). Many studies have defined a positive school climate as having authoritative characteristics similar to an authoritative parent who is both demanding and supportive of a child (Baumrind, 1966). An authoritative school climate is characterized by strict, but fair disciplinary practices and supportive teacher-student relationships, whereas permissive climates have supportive teacher-student relationships but little disciplinary structure, and authoritarian climates have strict discipline but lack supportive teacher-student relationships (e.g., Cornell, Shukla, & Konold, 2016).

Research indicates that both middle and high schools with more authoritative school climates, as reported by students, have lower rates of aggression against teachers, as reported by the teachers in those schools (Berg & Cornell, 2016; Gregory, Cornell, & Fan, 2012). Using a nationally representative sample of teachers, Huang et al. (2017) reported similar results. Teachers' perception of the presence of an authoritative school climate (as measured by disciplinary structure and teacher perception of support by administration) in K-12 public schools reduced the likelihood a teacher would be threatened (Huang et al., 2017). Chen and Astor (2008) reported the rationales for aggression against teachers among Taiwanese students as, the perception of "unfair treatment from teachers, unreasonable requirements or requests, and differing opinions from teachers" (p. 12), which are characteristics of less authoritative climates. Khoury-Khassabri et al. (2009) found that Israeli students with positive student-teacher relationships and favorable perceptions of school policy and interventions by staff to deal with violence also reported engaging in less aggression against teachers.

These studies provide support that a positive, or authoritative school climate has the potential to serve as a protective factor against teacher victimization. Given that schools using a threat assessment approach report more positive school climates and lower student aggression (e.g., Cornell, Gregory, & Fan, 2011; Cornell, Sheras, Gregory, & Fan, 2009; Nekvasil & Cornell, 2012; Nekvasil & Cornell, 2015), schools should consider threat assessment as a potential approach to mitigating violence against teachers in schools.

Many efforts to reform school discipline do not rely on exclusionary discipline practices. Restorative Practices (www.schottfoundation.org/sites/default/files/restorative-practices-guide.pdf), Positive Behavior Intervention Supports (PBIS, http://www.pbis.org/), and My Teaching Partner (MTP, https://curry.virginia.edu/uploads/resourceLibrary/CLASS-MTP_PK-12_brief.pdf) emphasize making sure rules are clear and fairly enforced in the context of a positive respectful relationship between teacher and student. Teachers' use of proactive classroom management strategies (e.g., praise for appropriate behavior, developing positive relationships with students, consistency in behavioral expectations and consequences) and student-centered instruction (e.g., small group instruction, cooperative learning) have been shown to decrease student aggression, and improve behavioral engagement and student achievement (Allen et al., 2013; Arbuckle & Little, 2004; Reyes, Brackett, Rivers, White, & Salovey, 2012; Rimm-Kaufman, La Paro, Downer, & Pianta, 2005).

In instances when aggression does occur in classrooms, teachers who reprimand aggressors, separate aggressors from their victims, help students develop coping mechanisms, or contact parents after instances of aggression, communicate to all students in their class that such behavior will not be tolerated. By contrast, teachers who do not intervene and address aggressive classroom behavior may reinforce it (e.g., Farrell et al., 2006; Henry, Farrell, Schoeny, Tolen, & Bymnicki, 2011). Thus, the teacher can play an essential role in maintaining a classroom environment that minimizes the potential for student aggression and maximizes the potential for student learning (Dicke et al., 2015).

However, when a threat of violence does occur, it is important that threat assessment teams consider the reason and context in which the student made the threat (e.g., frustration with academic tasks, perceiving a request to be unreasonable). Teams should consider the response of the student when asked why he or she made the threat. For example, in the CSTAG model of threat assessment, a student's response to the interview and willingness to apologize and retract a threat is critical in a team's determination of the seriousness of a threat. Threat assessment attempts to reduce risk by working *with* the student and implementing interventions that depend on the nature and severity of the threat. For example, does the student need support to develop problem solving skills, social-emotional strategies, or academic skills (Reeves & Brock, 2018)? Given the emphasis on responding to student needs, threat assessment teams need to interview and evaluate the individual student making the threat rather than make assumptions that a threat is serious based on demographic characteristics of students (i.e., profiling or stereotyping). Threat assessment experts discourage profiling because there is no single set of characteristics that identifies a violent individual with both sensitivity and specificity (Reeves & Brock, 2018; Vossekuil et al., 2002). Threat assessment programs should include an ongoing review of the racial and ethnic composition of students who are involved in threat assessments as subjects or recipients, and teams should be sensitive for possible biases at multiple levels (Morgan et al., 2014).

7.1. Limitations and future research

This sample is unique in that it represents a statewide sample of cases of threats against students and teachers in K-12 schools. However, the sample is cross-sectional and the analyses cannot demonstrate causal effects. Furthermore, the sample is limited to threats reported to school authorities that then received a threat assessment. There are undoubtedly student threats that were not known to school authorities, so the findings from this study must be qualified as applying to threats that were detected and received a threat assessment. It is not known how many threats would have been carried out in the absence of a threat assessment, so the low frequency of threat attempts cannot be assumed to be a product of the threat assessment. Finally, we did not compare the responses of schools using threat assessment to address threats against teachers to schools using an alternative approach to handling threats against teachers.

These findings raise some questions that could be answered with more detailed qualitative information about the circumstances of the threat, such as the student's motivation for making the threat, and how it impacted the student-teacher relationship. Following up with schools to see how the cases were resolved and whether or not the problems with students persisted is an important next step. Given the potential link between threat assessment and school climate, prospective studies should also be planned that examine the impact of using threat assessment on school climate. For example, changes in teacher reports of student threats and

other aggressive behavior should be examined. Future studies should also seek to understand teachers' perceptions of the threat assessment process and outcomes after a threat assessment is conducted for a threat made against a teacher. Part of a threat assessment team's job is to work with threatened individuals so that they understand the approach that is being taken and ideally, they are part of the effort to resolve the underlying problem or threat. Threat assessment attends to the impact of the threat on the recipient, but we did not have access to data on this aspect of the cases. Consistent with the CSTAG model, in most cases, we would expect the student to apologize and make amends for his or her behavior.

Novice teachers are more likely to experience a physical attack compared with more experienced teachers (Williams & Ernst, 2016), and others have noted that teachers with more teaching experience report less victimization and greater feelings of safety at school (Berg & Cornell, 2016; Gerberich et al., 2011; Martinez et al., 2016). Therefore, it would be interesting to know if there is a similar relationship between a teacher's experience and the likelihood he or she would be threatened by a student. Answering these questions would help us better understand and design interventions to support beginning teachers in their interactions with students. For example, more emphasis could be placed on academic and behavioral interventions, such as MTP (https://curry.virginia.edu/uploads/resourceLibrary/CLASS-MTP_PK-12_brief.pdf) and PBIS (http://www.pbis.org/) and in preservice general methods and classroom management courses.

8. Conclusion

The present study extends our understanding of teacher victimization by identifying the characteristics that distinguish threats against teachers from the more common occurrence of threats made against peers. Based on the results reported here, threat assessment seems to function similarly for both student and teacher threats; most threats are determined to be not serious and are infrequently attempted. In this study, only 3.6% of threats against teachers were attempted and no serious injuries occurred. Thus, school authorities should encourage teachers and students to report threats as a violence prevention strategy in schools. Ultimately, school authorities should consider implementing threat assessment because it appears to be effective in addressing student threats against teachers in a way that results in less student exclusion and can help improve school climate.

Funding

This project was supported by Grant NIJ 2014-CK-BX-0004 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice, and conducted in collaboration with the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services. The opinions, findings, and conclusions or recommendations expressed in this report are those of the authors and do not necessarily reflect those of the U.S. Department of Justice or the Center for School and Campus Safety at the Virginia Department of Criminal Justice Services. Dr. Cornell discloses his financial interest as primary developer of the Virginia Student Threat Assessment Guidelines and author of the Comprehensive School Threat Assessment Guidelines.

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