

REDUCING VIOLENCE AND AGGRESSION IN SCHOOLS

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This article offers a framework for understanding and responding to school-based aggression and violence. The term school violence is defined, epidemiological data are summarized, a typology of violence reduction strategies is presented, and procedures to effectively implement evidence-based programs are discussed. Although many evidence-based violence prevention programs are now available to schools, much work remains in three critical areas. First, additional research is needed to evaluate the impact of security strategies, peer-led programs, and threat assessment and crisis response initiatives. More generally, multi-level evaluations of integrated arrays of school-based violence prevention strategies need to be undertaken. Second, effective and realistic school-based assessment strategies need to be established to identify and address organizational barriers to the selection and adoption of an integrated and comprehensive array of targeted evidence-based violence prevention strategies in schools. And third, realistic guidelines through which schools can effectively monitor and implement evidence-based programs need to be developed.

Key words: *violence, aggression, schools, prevention, intervention.*

For every problem, there is a solution which is simple, neat, and wrong.

—H. L. Mencken

In 1994, Congress passed legislation establishing the national educational goals for the year 2000.¹ Goal 7 ambitiously states that “every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning” (Furlong & Morrison, 2000). School-based violence, however, remained a secondary concern in the national zeitgeist until the unprecedented press

coverage of the Columbine shootings in April 1999 (Snell, Bailey, Carona, & Mebane, 2002). Thereafter, the mantra “it can happen anywhere” was widely adopted and school administrators rushed to do “something” to avert such a tragedy in their own schools.

School administrators correctly recognize that disruptive behavior interferes with teaching, that fears about school safety subvert the academic endeavor, and that victimized children experience psychological reactions that interfere with the learning process (American Association of University Women [AAUW], 2001; National Research Council [NRC] & Institute of

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KEY POINTS OF THE RESEARCH REVIEW

- A vast number of school administrators are adopting inadequate “quick-fix” solutions to stem violence in their schools.
- “School violence” includes aggressive and violent behaviors committed in schools and during school-based activities and institutional violence perpetrated by iatrogenic policies and practices. Both types of violence are affected by structural inequities at the neighborhood, regional, and national levels.
- Very serious forms of school-based violence are frequently signaled prior to their commission, the severity of violence perpetration is inversely proportional to its use, and all forms of school-based violence have remained relatively stable.
- Strong leadership at the district and school levels, and commitment to a “communal” orientation or “ethos of caring,” are necessary to create positive climate change.
- Efforts to prevent and mitigate violence must be targeted to the specific needs and assets of students and schools as documented through self-report surveys, focus groups, and ethnographies.
- The establishment of a collaborative planning group to oversee all aspects of violence reduction and safety promotion is crucial for successful program implementation.
- Organizational barriers to the adoption and integration of new violence prevention initiatives at schools need to be assessed and addressed before such initiatives are adopted.

Medicine [IOM], 2001). The consequences of school violence that subvert the academic purposes of schooling include school avoidance, diminished ability to focus on academic pursuits, internalizing psychological problems such as depression and social anxiety, fearfulness among teachers and other school personnel, increased aggression and weapon carrying in the guise of self-defense, and the acceptance of violence as a reasonable form of conflict resolution (Elliott, Hamburg, & Williams, 1998; Hawker & Boulton, 2000). Nevertheless, administrators and teachers devote the bulk of their time overseeing efforts designed to raise test scores, meeting an increasing array of mandates and regulations, and balancing their budgets (Ableser, 2003; G. D. Gottfredson et al., 2000). Consequently, a vast number of school administrators are adopting inadequate “quick-fix” solutions

to stem violence in their schools: suspension or expelling of large numbers of disruptive students, electronic security measures, and/or a single circumscribed psychosocial program (U.S. Department of Education [USDE], 2000).

In this article, *school violence* is defined, epidemiological data on school violence are summarized, a typology of violence reduction strategies is presented, and methods for effectively planning, selecting, implementing, and evaluating comprehensive strategies to promote safe, caring, and supportive schools are discussed. Based on this review, recommendations are made to further our understanding of school-based violence and to more effectively reduce aggressive and violent behavior.

THE NATURE AND SCOPE OF SCHOOL VIOLENCE

Interpersonal violence or direct violence is defined as “behavior by persons against persons that intentionally threatens, attempts, or actually inflicts physical harm” (Reiss & Roth, 1993, p. 35). Less serious forms of violence are generally classified as aggressive behavior, which include targeted verbal, physical, or gestural behavior that is intended to cause minor physical harm, psychological distress, intimidation, or to induce fear (Loeber & Stouthamer-Loeber, 1998). Aggression can also be manifested through indirect forms of hostility such as spreading nasty rumors and social ostracizing (Crick & Bigbee, 1998). Generally, less serious forms of violence invariably precede more serious forms of violence. This dynamic is manifested in event sequences (e.g., inadvertent bumps or verbal slights can escalate into more serious forms of violence) as well as ontogenetically from childhood to adolescence (the pushes and shoves of elementary school children turn into vicious fights during adolescence).

Based on this review, recommendations are made to further our understanding of school-based violence and to more effectively reduce aggressive and violent behavior.

Violence is considered "school-associated" if such behavior occurs on school grounds, while traveling to or from school, or during school-sponsored events (Furlong & Morrison, 2000). Aside from a focus on aggressive and violent behavior among students, Epp and Watkinson (1997) defined *systemic* school violence as "any institutional practice or procedure that adversely impacts on individuals or groups by burdening them psychologically, mentally, culturally, spiritually, economically, or physically" (p. 4). The body of research on systemic violence in schools is less robust than the literature on student aggression and violence and has focused primarily on the negative affects of the overuse or disproportional use of punitive attitudes and strategies such as exclusion and suspension (Ayers, Dohrn, & Ayers, 2001).

Still less attention and research has focused on the influences and impacts of structural inequities at the neighborhood, regional, and national levels (Furlong & Morrison, 2000; Kozol, 1991). Risk factors that derive from structure-based social inequalities pose serious challenges at the societal level of analysis. From this perspective, the problem of school-based violence requires analyses of the interplay of violent behavior and structural violence, incorporating an analytic perspective that includes the full range of influences from individual to societal and the power that can be derived from such a perspective. Behavioral and systemic approaches to school violence, however, implicitly

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exclude factors external to the school itself that may affect levels of violence within the school (Coleman & Deutsch, 2001). Schools located in low-income and high-crime neighborhoods, for example, generally have significantly higher levels

of school-associated violence (Laub & Lauritsen, 1998). Because virtually no effective, community-level violence prevention strategies have been evaluated as effective in reducing school violence, the scope of this article is restricted to school-based strategies that focus on reducing aggression and violence by students.

EPIDEMIOLOGY OF SCHOOL-BASED VIOLENCE

The most accurate overall estimates of non-fatal violence among school-aged youth in the United States are derived from self-report surveys administered to nationally representative samples.² Three such surveys have been conducted in three or more different years (allowing for the analysis of trend data based on cross-sectional data): the Youth Risk Behavior Survey (YRBS), the School Crime Supplement of the National Crime Victimization Survey, and Monitoring the Future (DeVoe et al., 2002). Special-theme and longitudinal studies have also provided valuable information on the nature and prevalence of school violence (AAUW, 2001; Nansel et al., 2001; Resnick et al., 1997). These include studies of sexual harassment, the expression of bias-based actions or attitudes (e.g., homophobia and racism), bullying, and attitudes and beliefs about the use of violence and aggression.

Even with some overlap in the types of questions asked, results from the various self-report surveys are not directly comparable. The surveys differ in their use of sampling strategies, specific questions asked, response options, and in the degree of actual or conveyed anonymity (Furlong & Morrison, 2000; Kingery, Coggeshall, & Alford, 1998). For example, the National Crime Victimization Survey is conducted as a one-on-one, in-home interview, a procedure that is likely perceived as less anonymous than the group-administered, paper-and-pencil YRBS (Kingery et al., 1998). Similarly, the Monitoring the Future surveys exclude ninth-grade students, whereas the YRBS includes all high school students. Still, trend data consistently indicate that school-associated rates of nonfatal violence have stayed about the same during the past 10 to 15 years and, in some cases, declined (DeVoe et al., 2002).

Results from self-report surveys reveal that the severity of school violence perpetration is inversely proportional to its frequency of use. Physical aggression is less frequently perpetrated than verbal aggression, threats with a weapon are less frequently made than threats without a weapon, fights that result in a physi-

cal injury are less common than those that do not result in injury, and the most common forms of school-based violence are predominantly verbal—bullying and sexual harassment (AAUW, 2001; DeVoe et al., 2002; G. D. Gottfredson et al., 2000; Greene, 2000; Nansel et al., 2001). School-associated homicides, despite widespread news coverage, are extremely rare. The probability of a student becoming a homicide victim throughout the course of a school year is approximately 1.7 million to 1 (Anderson et al., 2001). Furthermore, fewer than one hundredth of all homicides of 6- to 18-year-olds are school associated.

PROGRAM SELECTION AND PROGRAM TYPOLOGIES

During the past 10 years, a large and growing body of evaluation research has documented and described a wide range of effective violence and school violence prevention programs, and a growing number of federal agencies, including the Department of Education, have restricted funding to promising or evidence-based programs. To help school personnel select the best and most site-appropriate array of programs and practices, several compilations of evidence-based violence prevention programs have been published (Gottfredson, 2001; Mihalic, A. A. Fagan, Irwin, Ballard, & Elliott, 2004; NRC & IOM, 2001; Schnike & Gardner, 2003; USDE, 2002; U.S. Department of Health and Human Services [USDHHS], 2001). The Center for the Study and Prevention of Violence (2004) has compiled a meta-matrix of more than 350 evidence-based programs as designated by 12 different organizations. The earlier cry of “nothing works” is simply no longer pertinent.

The organizational scheme adopted here to categorize and describe the various school-based violence prevention strategies and programs is based on a combination of three dimensions: purpose, target population, and content (see Table 1).

Security Apparatuses and Policies

Surveillance cameras and metal detectors—the most widely used electronic approaches to

security—are relatively popular among schools; however, whether such devices actually reduce levels of violence remains untested. Other security-related strategies and policies adopted by schools include the closing of sections of a school building, increased lighting, closed campus policies, electronic-card-entry devices, use of security guards or police officers, locked doors, dress codes, and locker searches (Dwyer & Osher, 2000; G. D. Gottfredson et al., 2000; Small et al., 2001). Few of these methods, however, have been evaluated, and none has been rigorously evaluated to date (Gottfredson, 2001).

The psychological impact of security strategies is also important to consider. For example, preliminary data suggest that metal detectors may create more disorder and fear than not (Mayer & Leone, 1999). If the goal were to promote a caring school climate, security measures that convey and promote an atmosphere of suspicion would be low on the list of preferred strategies. Indeed, recent recommendations concerning school safety from the USDE, the U.S. Secret Service, and the Centers for Disease Control do not recommend security devices but instead emphasize the promotion of trusting interpersonal relationships and a culture of safety (Barrios et al., 2001; Fein et al., 2002).

Peer-Led Programs

The defining feature of such programs is the involvement of students in the establishment and/or operation of violence prevention, pro-social, or peace-oriented programs or strategies (Barrios et al., 2001; Greene, 1998; Stephens, 1998). Peer mediation programs are the most well known of such programs, although the extent of leadership granted to students in these

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TABLE 1: Typology of School-Based Violence Prevention Strategic Approaches

<i>Strategy</i>	<i>Purpose/Goal/Target Population</i>	<i>Examples</i>	<i>Evidence^a</i>
Security apparatus and policies	Ensure that environmental controls are optimized to maximize the safety of students and school staff. Applies to entire school.	Surveillance cameras Metal detectors Locker searches Magnetically locked doors	None to minimal
Peer-led programs	Secure student involvement to ensure and promote interventions that are attuned to student culture and enhance student ownership of violence prevention initiatives.	Peer mediation Peer counseling Student problem solving	None to minimal
Psychosocial and psychoeducational programs	Selected students or all students in a school or grade level. Provides counseling, teaching, coaching, and training to enhance students' conflict resolution and related interpersonal skills. Generally provided to all students in a grade level or school.	Resolving Conflict Creatively I Can Problem Solve Social Decision Making PATHS Second Step FAST Track Multisystemic Therapy	Strong for some programs
Selected and indicated programs	Engagement and articulation of multiple strategies and key stakeholder groups working to reduce aggression/violence. Targeted to at-risk or aggressive/violent students.	Graduated sanctions Suspensions and expulsions Fair and consistent application of rules Positive behavioral supports	Strong for some programs
Discipline policies and rules	Written school policies, procedures, and sanctions regarding aggressive or violent acts or incentives for positive or peaceful behavior. Applies to all students in a school, sometimes specified for specific grade levels.		Minimal to moderate
Threat assessment and crisis response	Identification of and response to at-risk students. Systemic threat assessment. Managing violence-related crises. Targeted to the entire school or school district. Effect systemic change through building capacity. Targeted to the entire school or school district.	Warning signs and guidelines Threat assessment procedures Procedures for responding to a crisis and its aftermath	None to minimal
School climate strategies		Bullying Prevention Program Comer's School Development Program Seattle Social Development Program PeaceBuilders	Minimal to strong

a. See citations in main text regarding the research on which the evidence ratings are based. For research overviews, see Gottfredson (2001), Mihalic et al. (2001), NRC and IOM (2001), Schnike and Gardner (2003), USDHHS (2001).

programs varies enormously (Greene, 1998). Furthermore, research has failed to demonstrate that peer mediation programs reduce aggressive behavior (Gottfredson, 2001; NRC & IOM, 2001). Similarly, peer counseling programs have not been shown to be effective (Gottfredson, 2001). Other models, however, such as the “the student problem solving” approach developed by Kenney and Watson (1998), do show promise. In this approach, students engage in developing, implementing, and assessing circumscribed programs or strategies based on their identification of, and perspectives on, school problems. For example, students devised a plan to reduce fights in the school cafeteria by working with school personnel to increase the availability of preferred foods and reduce lunch lines. Similarly, young people in Oakland, California, have organized to educate peers and policy makers on the nature and consequences of gun- and gang-related violence (Calhoun, 2004). Additional student-led strategies have been described elsewhere (Dingerson & Hay, 1998; Greene, 1998).

Psychosocial and Psychoeducational Programs

In this approach—the most frequently adopted circumscribed violence reduction program—counseling, teaching, coaching, and/or training are provided to promote individual behavior change with respect to cooperative, prosocial, and peaceful strategies to resolve conflicts (G. D. Gottfredson et al., 2000). Although individual counseling has nearly always been shown to be ineffective (though cognitive behavioral strategies fare better than other therapeutic models), several psychoeducational or social-skills training programs have been found to be effective. The vast majority of these programs are implemented in elementary and middle schools as universal programs targeting the entire student population (Gottfredson, 2001; NRC & IOM, 2001; Thornton, Craft, Dahlberg, Lynch, & Baer, 2000; USDHHS, 2001).

One such program is Promoting Alternative Thinking Strategies (PATHS) (Greenberg, Kusché, & Mihalic, 1998). This curriculum-based elementary school program focuses on

the promotion of social and emotional competencies, covering five basic conceptual domains: self-control, emotional understanding, positive self-esteem, relationships, and interpersonal problem solving. One hundred thirty-one sequenced and integrated lesson plans covering each of the five conceptual domains are taught during a period of 5 years. For example, lessons under the “relationships” domain include “greedy, selfish, generous” and “jealous or envious, content or satisfied.” The lessons are taught through role-plays, dialogues, storytelling, and teacher and peer modeling. Evaluations of the PATHS program have found statistically significant improvements in prosocial problem-solving strategies as well as lower teacher-rated aggressive behavior (Greenberg et al., 1998).

Similar elementary school programs shown to be effective in at least one reasonably rigorous evaluation include Social Decision Making (Elias, Gara, Schuyler, Branden-Muller, & Sayette, 1991), Second Step (Grossman et al., 1997), I Can Problem Solve (Shure & Spivak, 1982), and Resolving Conflict Creatively (Aber, Jones, Brown, Chaudry, & Samples, 1998). Each program varies in terms of duration, focus, the degree of involvement by parents, and evaluation design. Like most effective psychosocial and psychoeducation models, these programs strive to infuse their programmatic principles and philosophy throughout the entire school curricula, adopt a cognitive-behavioral approach, are adjusted to address developmental changes, provide positive feedback, teach interpersonal problem-solving techniques, promote emotional literacy, and use multiple teaching and training methods (Gottfredson, 2001; Hunter, Elias, & Norris, 2001; Thornton et al., 2000).

Integrated Programs for Selected and Indicated Programs

Selected programs (targeted to students who exhibit known risk factors) and indicated programs (targeted to those students who have exhibited aggressive or violent behavior) are generally more intensive than universal programs and invariably require involvement of non-

school sectors of the child or adolescent's life (Elliott, Williams, & Hamburg, 1998). Moreover, a comprehensive school-based strategy that includes an integrated array of programs, from universal to indicated, is optimal (Dwyer & Osher, 2000). Such an array of programs addresses the needs of students who engage in behaviors from verbal aggression to serious violence. "Integration" is necessary to ensure that the programs are reciprocally reinforcing and compatible. A patchwork of uncoordinated interventions can cause unintended iatrogenic effects (Domitrovitch & Greenberg, 2000). For example, zero-tolerance policies targeting specific verbal expressions (e.g., "I feel like killing Joe for doing that") may result in school suspensions of students who make such statements as part of a conflict resolution program that encourages open and honest expression of thoughts and feelings.

FAST Track is an example of an evidence-based program that provides supplemental modules to a universal program for those students who exhibit aggressive behavior (Conduct Problems Prevention Research Group, 1999). This program supplements the PATHS program with parent training, home visitation and care management, and academic tutoring. Similarly, Cunningham and Henggeler (2001) supplemented a universal program (Olweus' Bullying Prevention Program) with the Multi-systemic Therapy (MST) program, an evidence-based indicated program that uses an intensive, therapeutic, home-based, and family-focused model. In this model, all children are exposed to the Bullying Prevention Program and only those adolescents who exhibit serious antisocial behavior are referred to the MST program.

Discipline Policies and Rules

Discipline policies and rules are the most commonly adopted strategies that schools use to prevent violence. Based on a modest body of research, characteristics of effective school rules and policies have been established. These include graduated sanctions that are commensurate with the seriousness of the infraction (a verbal reprimand precedes sending a student to the principal's office), rules that are clearly under-

stood and perceived as fair (suspensions for clothing violations or using indecent language is an example of a rule that would typically be considered unfair by students), consistent application of rules and sanctions (students are acutely sensitive to such inconsistencies based on athletic or academic prowess, gender, and race), the administration of positive sanctions for desirable behavior, avoidance of excessive reliance on suspensions and expulsions, and the inclusion of rules prohibiting bullying and harassment (Barrios et al., 2001; Gottfredson, 2001; G. D. Gottfredson et al., 2000; Greene, 2003; Laub & Lauritsen, 1998; NRC & IOM, 2001; Sprague et al., 2001). Unfortunately, the vast majority of school districts fall short of adopting these practices (G. D. Gottfredson et al., 2000).

Threat Assessment and Crisis Response Strategies

Three aspects of threat assessment and crisis response have been articulated: (a) identifying and responding to students who are experiencing emotional difficulties, (b) undertaking a systemic threat assessment when a student poses a possible risk of violence, and (c) managing violence-related crises and their aftermath (USDE, 2003).

The process of identifying and responding to students who are experiencing emotional or social difficulties has been comprehensively addressed in *Safeguarding Our Children: An Action Guide* (Dwyer & Osher, 2000), a publication that has been widely disseminated by the USDE. Early and imminent "warning signs" are specified and the principles for utilizing such signs are described. The principles include harm avoidance and a perspective that violence is always contextual with respect to motivation, development, and situation factors. Warning signs are presented not as "predictors" but rather as indicators that something is awry in the life of the student and that this "something" needs to be understood and addressed. Examples of such warning signs include social isolation, disconnectedness from school, impulsive expressions of anger, and alcohol and drug use. Imminent warning signs include serious physical

fighting, threats of lethal violence, and possession of firearms.

Particular emphasis is placed on the avoidance of stigmatizing students, the examination of behavioral patterns over time (a single emotional outburst is likely an aberration that requires a different set of actions than does a chronic pattern of outbursts), the timely use of nonjudgmental therapeutic assessments (particularly when a teacher identifies a significant change in a student's usual pattern of behavior or personality), the provision of needed mental health services, and the creation of a caring and supportive school climate. Schools are urged to conduct training on warning signs, and participation of students, parents, and community-based groups in helping to identify warning signs is essential.

Similarly, the USDE, in collaboration with the U.S. Secret Service, has published a guide for conducting threat assessments when preliminary evidence suggests the possibility of targeted violence (Fein et al., 2002). The central preventive strategy emphasized in this guide is the establishment of "cultures and climates of safety," both to minimize the potential occurrence of targeted violence and to maximize students' involvement in the threat assessment process. Emphasis is also placed on establishing bullying prevention programs, as a significant number of past perpetrators were motivated by revenging the chronic torments that they had experienced. The guide strongly cautions against the use of profiling because no accurate profile of school shooters has emerged (Fein et al., 2002).

Despite a school's best efforts to avert violence-related crises, the possibility of such an occurrence needs to be taken seriously. The creation of Crisis Response Teams (CRTs) is essential to minimize injuries and to effectively and efficiently respond to the needs of all key stakeholders during and after a crisis (Fein et al., 2002; Schonfeld & Newgass, 2001). Recommended guidelines for establishing crisis response procedures are similar to those for targeted threat assessment: training in crisis response procedures for the CRT members who in turn can train the entire school community; collaborative planning with local social service

and law enforcement professionals; a clear chain-of-command structure (i.e., who does what and when once a crisis is identified); communication, transportation, and custody transfer protocols (this is particularly important when a school or law enforcement authorities imposes an emergency evacuation); a multi-level organizational structure (involvement of law enforcement, school authorities, local social service agencies, and parents is required); resumption of routine activities as soon as possible after the crisis (i.e., regular school classes and activities); a process for memorialization; dissemination of floor plans and school schedules to local law enforcement authorities; and procedures for identifying and addressing mental health needs (National Education Association, 2002; Schonfeld & Newgass, 2001). As is the case for threat assessment methodologies, no research has been conducted to assess the impact of these procedures.

School Climate-Oriented Strategies

A school's climate is a complex matrix of student and adult attitudes, beliefs, and feelings about the school; interpersonal relationships within the school; values and norms, particularly in relation to resolving interpersonal conflict; and codes of behavior (Cook, Murphy, & Hunt, 2000). As such, school climate, as well as classroom climate, has a profound impact on the nature and extent of school-associated violence (Barrios et al., 2001; McEvoy & Welker, 2000; Sprott, 2004). We know, for example, that peer and adult norms that reinforce or passively ignore minor forms of aggressive behavior act to sustain bullying behavior (Greene, 2000). School climate also can affect the degree to which students are emotionally attached to their school (an empirically verified protective factor) as well as levels of commitment to violence prevention and peace promotion efforts (Gottfredson, 2001).

An underlying theme in the literature on school social climate is the importance of connectedness and trust among students, teachers, parents, and administrators (Barrios et al., 2001; Fein et al., 2002; Resnick et al., 1997). The establishment of trust between students and adults

TABLE 2: Stages of Strategic Development

<i>Stage</i>	<i>Purpose</i>	<i>Key Concepts</i>
Needs/assets assessment	To ensure/establish organizational readiness and capacity and to prioritize site-specific aggression-related problems and assets on the individual, family, peer group, school, and community levels.	Conduct assessment of political and economic milieu, school morale, administrative will, adherence to programs, and philosophies. Address identified obstacles that impede organizational readiness and capacity. Fully document existing programs and resources (people as well as programs). Secure data on the nature, extent, and dynamics of aggressive and violent behavior in the school and community. Establish scheme to prioritize problems.
Initial planning	To ensure that the proper groundwork is established to secure key stakeholder buy-in.	Establish collaborative planning group 1. Diverse/inclusive membership 2. Support from administration 3. Sufficient time to devote to issue Harness community and school-based resources. Promote effective information flow
Strategy adoption	Given the nature, extent, and dynamics of the identified problems and the capacity and willingness of the school or district; select and adopt the most compatible, realistic, and effective strategic interventions	Whatever strategies are adopted, they should be pragmatic as to what is feasible and likely to be embraced at a particular school or district. Maximize coordination and integration of new and existing programs.
Strategy implementation	Ensure sufficient fidelity to the written guidelines of the programs that are adopted and ensure that the programs are adapted to the particular conditions and culture in the targeted school.	Maximize psychological ownership of the programs by school personnel and students. Ensure proper training in the program philosophy and methods. Sustain the program over time.
Evaluation	Establish an information feedback system to ensure that the array of strategies is regularly upgraded with respect to stated objectives.	Set concrete and measurable objectives for the array of strategies. Conduct baseline assessment. Assess annually and secure ongoing feedback to maximally pinpoint how the strategic array of programs can be continuously improved.

maximizes the chances that students will confide in school staff when they are experiencing a school or personal problem, enabling staff members to provide appropriate help. The establishment of trust also optimizes the chances that students will inform adults if they hear about another student's plan to harm others. This is particularly important in light of the finding that peers were 15 times more likely to be informed in advance of a school attacker's plans than were adults (Fein et al., 2002).

Strong leadership at the district and school levels and commitment to a "communal" orientation or "ethos of caring" are necessary ingredients in effecting positive climate change (Gottfredson, 2001). Comer's School Development Program is an example of a school-based program that has been shown to positively improve school climate and to reduce aggressive behavior (Cook et al., 2000). This program spe-

cifically focuses on reorganizing and redirecting school management and planning into a collaborative and consensus-building process and integrating parents in school decision making. In addition, some universal programs adopt what can best be described as a broad-based systems approach, with training and guidance for all key stakeholders in a school system, weaving program concepts into the everyday life at the school (for a catalogue of whole school reform models, see NW Regional Laboratory, n.d.). These include Olweus's Bullying Prevention Program, the Seattle Social Development Program, and the PeaceBuilders program, the latter two emphasizing cooperative learning activities and the promotion of prosocial student and teacher behavioral norms as critical programmatic features (Flannery et al., 2003; Hawkins, Farrington, & Catalano, 1998; Olweus & Limber, 1999).

EFFECTIVE PLANNING, SELECTION, AND IMPLEMENTATION STRATEGIES

The process of selecting, adopting, and implementing school-based violence prevention strategies involves five critical steps (see Table 2).

Needs and Assets Assessment

Efforts to prevent and mitigate violence must be targeted to the specific needs and assets of schools and schools districts (Mihalic et al., 2004). The first task is to establish the degree of readiness and capacity of the school itself. Several organizational and practice features have been shown to positively affect implementation quality: involvement by teachers and school administrators in initiating and sustaining program support, flexibility and problem-solving ability, administrative and staff stability, and philosophical compatibility and political support (Gottfredson & Gottfredson, 2002; Hess & Leal, 2000; Mihalic et al., 2004). Community and school board opposition to gay rights, for example, can squash bullying prevention efforts that focus on anti-gay harassment (Bagby, 2005). Additional organizational features that affect implementation quality include adequate fiscal resources, availability of staff time to devote to the program, and experience with and willingness to integrate new strategies with ongoing activities and a school's curricula (A. A. Fagan & Mihalic, 2003; Elliott & Mihalic, 2004; Gottfredson & Gottfredson, 2002; G. D. Gottfredson et al., 2000; Mihalic et al., 2004).

Correspondingly, several key questions need to be answered before a school or school district undertakes new or enhanced violence reduction strategies. Useful questions include: Is the school in the midst of leadership changes? Is the school and district leadership effective? Is the school suffering from low morale? Is there a high rate of staff and administrative turnover? Is the budget strained? Does the school or principal have a history of successfully implementing programs? Is the school overburdened in trying to implement violence prevention ef-

forts? Has the school worked well in collaborating with community based groups (Elias, Bruene-Butler, Blum, & Schuyler, 2000; G. D. Gottfredson et al., 2000; Mihalic et al., 2004)? If the answers to these and related questions raise serious concern, they need to be addressed before proceeding further (Gottfredson, 2001). External technical assistance may be needed. Such assistance, however, should be focused on building capacity within the school district rather than on doing the work for the district; otherwise, districts will falter once the assistance is withdrawn (Everhart & Wandersman, 2000).

As indicated earlier, the best source of information about nonfatal school-based violence derives from student self-report surveys, at least for middle and high school students (for elementary school students, standardized teacher checklists and observational instruments are typically used). Ideally, schools should use standardized, normed, and developmentally appropriate surveys that are designed for this purpose (e.g., the YRBS, the School Crime Supplement; DeVoe et al., 2002). Still, most schools are ill equipped to analyze and interpret survey data (Barrios et al., 2001). Local universities can be helpful in fulfilling this function.

In addition, focus groups with middle and high school students, as well as ethnographic studies, provide important supplemental data on the specific dynamics and contexts of school-based violence as well as program implementation (Devine, 1996; Stephens, 1998). Focus groups and ethnographies can identify peer codes of behaviors regarding "snitching" that need to be addressed; motivations for aggressive behavior (usually some form of retaliation); areas of the school that students identify as unsafe; relationships with security guards; peer group dynamics and hierarchies that are related to intimidation, harassment, and fighting; and peer norms between boys and girls that may be related to dating violence or sexual harassment (J. Fagan & Wilkinson, 1998; Lockwood, 1997; Rich & Stone, 1996). As much as possible, information on the norms, mores, levels of trust, and

codes of behavior among the adults at the school should also be collected (Cook et al., 2000; Fein et al., 2002).

School discipline data can also be used productively to supplement self-report data (Sprague et al., 2001). For example, if a disproportionate number of African American students are expelled, one objective for the school might be to reduce this sort of disproportionality. Other available types of supplemental assessment methods include diaries and peer reports (Greene, 2000).

Individual student assets should also be assessed (Rhee, Furlong, Turner, & Harari, 2001). Such assessments enable school and program staff to leverage abilities and talents in areas such as the arts, sports, spirituality, friendships and family supports, participation in positive groups or clubs, hobbies, involvement in community betterment projects, and personal characteristics such as leadership qualities, conscientiousness, agreeableness, feeling respected and valued, self-efficacy, and emotional literacy. A growing body of research has documented that such assets build resiliency and reduce the impact of risk factors that contribute to aggressive and violent behavior (Aspy et al., 2004; Gottfredson, 2001; NRC & IOM, 2001). An orientation to positive individual assets and the conditions that promote them also shifts attention from a focus on circumscribed violence prevention programs and punitive approaches to a focus on safety promotion, the maintenance of basic human and civil rights, and the active support and positive sanctioning of prosocial behavior (Dwyer & Osher, 2000; Elias et al., 2000; Gottfredson, 2001; Stephens, 1998).

Similarly, a detailed inventory of the current violence reduction programs in the school district and the wider community should be compiled. This is important to reduce duplication and maximize resources, to avoid contradictory messages, and to understand allegiances to particular programs or program philosophies. In addition, a review and summary of discipline, threat assessment, and crisis management policies and procedures should be summarized. Finally, these multiple data sets need to be integrated into a coherent report. The report should include an analysis of which problems are most

pressing as well as a series of goals and measurable objectives. The objectives should specify reductions in violent behavior as well as improvements in prosocial behavior and overall school climate (Stephens, 1998).

Planning Group and Initial Planning Activities

The establishment of a collaborative planning group to oversee all aspects of violence reduction and safety promotion is crucial for successful program implementation (Stephens, 1998). The success of the planning group is dependent on several factors (Elliott & Mihalic, 2004; Mihalic et al., 2004; Violence Institute of New Jersey [VINJ], 2001). First, an energetic leader or program champion who can effectively challenge and inspire other members of the group is necessary to sustain the group as external pressures and competing priorities emerge. Second, a competent staff member who can devote full-time efforts to ensure that plans are carried forward in the spirit and manner in which they were recommended is necessary. Last, the planning group must have initial and ongoing support from the school administration and school board.

To maximize the planning group's effectiveness, its membership should include participants from a diverse range of internal and external constituencies. The rationale for such diversity is threefold: (a) With involvement in decision making, buy-ins from these constituencies are maximized; (b) the harnessing of community resources and knowledge is maximized to effectively address the full ecological array of risk factors and draw on the strengths and assets from the entire community; and (c) communication and the flow of information is maximized to ensure coordination of efforts (Barrios et al., 2001; Elliott et al., 1998; Everhart & Wandersman, 2000; Greene, 2002; Hantman & Crosse, 2000; Hunter et al., 2001; Stephens, 1998).

Strategy Adoption

The first consideration in reviewing available programs for adoption should be the degree of

fit between a school's goals and objectives and the nature and severity of behaviors and attitudes addressed by the intervention (Hamilton Fish Institute, 2001; Sprague et al., 2001). For example, a gang intervention program is useless if gangs and gang-related activities are not present in a school. Indeed, Gottfredson and his colleagues (2000) found a positive empirical relationship between the use of needs assessment data and the quality of the activities and programs adopted. Unfortunately, more than 40% of school districts do not choose programs based on a student needs assessment (Hassett-Walker, Hirsch, & Nixon, 2001).

Additional considerations should include research evidence that the program is effective, cultural and developmental appropriateness, ease of incorporation into the school's schedule and operational structure, cost, staff capacity, clarity and extensiveness of program training, program complexity, philosophical compatibility, and key stakeholder support (Dane & Schneider, 1998; Everhart & Wandersman, 2000; Gottfredson, 2001; Gottfredson et al., 2000; Hamilton Fish Institute, 2001; Hantman & Crosse, 2000). Each of these factors can pose significant obstacles to successful implementation and should be carefully examined.

Schools, of course, are not blank slates; all schools have existing programs and policies to address violence. Schools must therefore consider whether they wish to maintain, enhance, or terminate these programs and policies. This is no simple matter, as teachers and administrators often become attached to particular programs (75% of a nationally representative sample of school districts indicated that they were satisfied with their existing programs), even if the programs have no empirical support as to their effectiveness (Hantman & Crosse, 2000). Although there is no single best solution to these sometimes-conflicting considerations, the planning group can try to ensure that adopted programs are compatible, coordinated, and integrated (Elias et al., 2000).

The majority of school districts do, in fact, consider multiple sources of information when reviewing programs for adoption (Hantman & Crosse, 2000; Hassett-Walker et al., 2001). Yet the degree to which districts weigh each source

of information and the way in which they define terms is frequently ill informed and inappropriate; for example, many district administrators possess an inadequate understanding of what constitutes a "research-based" program (Hantman & Crosse, 2000). To help remedy this problem, the USDE has prepared a "user-friendly" guide for school personnel to help evaluate scientific studies and identify evidence-based programs (Institute of Educational Sciences, 2003).

Strategy Implementation

The study of, and attention to, program implementation of school-based prevention programs has emerged as one of the most pressing concerns among researchers and practitioners. The first task in ensuring successful implementation is the establishment of procedures to document what and how much of the "what" is actually implemented. These data are important for several reasons (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; Elias et al., 2000; Gottfredson, 2001; Gottfredson et al., 2000). First, even if an efficacy trial reveals that a program can work, the program's effectiveness can be seriously compromised if it is replicated in a manner that diverges from the program requirements (Wilson, Lipsey, & Derzon, 2003). Second, if a program fails to reduce levels of violence in a school or school district, one needs to know whether the failure was because of the ineffectiveness of the program or to improper program implementation, the latter sometimes referred to as a Type III error (Dobson & Cook, 1980). Relatedly, school officials and consultants have no basis for knowing how to improve a program if they do not know what exactly was implemented. Third, it is important to learn whether an efficacious program can be replicated with fidelity under routine circumstances. If the barriers to replicating a program are insurmountable, then the program model needs to be adjusted.

Ensuring that a program model is implemented with fidelity is a multidimensional endeavor (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; Gottfredson & Gottfredson, 2002). The dimensions include content

(whether the prescribed program elements are delivered), quality of implementation (whether the program elements are provided in the prescribed manner and quality), dosage or exposure (whether the targeted subjects receive each of the program elements to the degree prescribed), and program differentiation (whether the implemented program is sufficiently different from what was previously implemented or implemented in a comparison school).

Procedures for assessing each of these dimensions are available but severely underutilized. Even within the efficacy research literature, only a minority of studies have included adequate data on implementation (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; Gottfredson, 2001). The few studies that have partitioned outcomes according to degree of implementation have generally shown significantly better outcomes in those settings in which programs were implemented with "reasonably" high fidelity (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; Gottfredson, 2001; Kam, Greenberg, & Walls, 2003). Techniques for assessing fidelity include observations by trained observers; questionnaires and surveys for clients and staff about which, how, and how many of the program components were implemented; and attendance sheets and progress notes or workshop summaries (Gottfredson et al., 2000; Kam et al., 2003). Nevertheless, we know very little about the degree to which various levels of fidelity affect program outcomes.

A small number of program developers are now requiring replication sites to systematically monitor and document various aspects of implementation to ensure maximum fidelity. For example, the MST program model has created the Therapeutic Adherence Scale, a 26-item questionnaire that licensed programs are required to administer to clients on a regular basis to ensure compliance with program principles (Henggeler, 1998). Similarly, program developers are increasingly requiring initial and booster training, requiring site visits by authorized trainers, and producing detailed manuals that specify the nature of the required programmatic

components (Dane & Schneider, 1998; Hantman & Crosse, 2000). The studies that have examined whether these procedures do improve fidelity have revealed positive mediating effects of higher versus lower fidelity (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; A. A. Fagan & Mihalic, 2003; Gottfredson, 2001).

The question of whether strict fidelity is optimal is a source of much debate (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000; Gottfredson et al., 2000). On one side are those who advocate full fidelity to the specific implementation requirements that are prescribed in evidence-based programs (Elliott & Mihalic, 2004). These advocates argue that program effectiveness will be compromised if the program is changed. Nevertheless, even those who are most concerned with program fidelity consider some level of alteration acceptable. For example, Botvin and associates (1990) found that significant positive results were achieved for their well-regarded, evidence-based drug prevention program when only 60% of the required curriculum objectives were covered.

On the other side of the debate are those who argue that local conditions and the promotion of local ownership require adaptations to established programs. If adaptations of local conditions are not made, these advocates argue, the program is not likely to be well received by the school staff, administration, and students. Such adaptations may involve shortening or eliminating program modules or replacing them with others or may involve changing the content of the program materials to better fit the local youth culture. In other words, programs are customized to fit local conditions and contexts (Everhart & Wandersman, 2000). Adaptation is most likely to occur in settings that significantly differ from the settings in which the efficacy trials were conducted and in those settings in which the local planning groups are most active in establishing violence reduction programs (Dane & Schneider, 1998). Still, it is possible that with proper technical assistance and sufficient organizational capacity and resources, teachers and administrators can come to appreciate and comply with program requirements (Elliott & Mihalic, 2004).

A middle ground has also been suggested (Dane & Schneider, 1998). In this approach, adaptation is acceptable if critical features of a program are retained and the conceptual thrust and logic of a program are maintained (Hunter et al., 2001). Reasonable as this may sound, definitions of these qualities are far from clear-cut and are not often specified in program manuals (Elliott & Mihalic, 2004).

Evaluation

The goal in evaluating school-based strategies is pragmatic rather than scientific: It should provide sufficient information to assess what strategies are actually implemented, whether the implemented strategies are well received by all school stakeholders and whether the strategies are associated with reductions in school-associated violence and with improvements in the overall school climate. Manuals to assist schools in undertaking such evaluations are available (Maxfield, 2001; Milstein & Wetterhall, 1999), and schools can utilize the expertise available at most local colleges and universities.

To assess whether the objectives have been met, changes over time in the nature and extent of aggressive and violent behavior need to be assessed. As indicated above, measures of what and how much of what was actually implemented are critical to linking the outcomes to program components. Mechanisms to solicit and respond to feedback and suggestions from all members of the school community are very useful in addressing the everyday obstacles that are routinely encountered in trying to effectively implement a program (e.g., perceptions that there is not sufficient time to fully implement a program). Indeed, this is a key function of a school's planning group and program champion. Patience is required when examining the impact of new and enhanced initiatives. Positive change takes time, and program stability is essential to the change process (Cook et al., 2000; Gottfredson et al., 2000). Educators and policy makers, therefore, need to resist the temptation to constantly shift from program to program.

CONCLUSION

During the past 10 years, much progress has been made in establishing the effectiveness of violence prevention strategies aimed at the general population of students, at-risk students, and students already engaging in aggressive and violent behavior. We now know that many programs, if implemented properly, can reduce levels of aggression and violence in schools. Nevertheless, the vast majority of designated evidence-based programs are circumscribed programs that usually focus on one level of risk (universal, selected, and indicated programs). Much less research has been conducted on the impact of security measures such as metal detectors and surveillance cameras, peer-led programs (with the exception of peer mediation, which has typically been demonstrated to be ineffective), and threat assessment and crisis response initiatives. Some research, although more needs to be undertaken, has focused on the effectiveness of school discipline policies and climate change strategies. Moreover, despite advances in evaluation science that have made possible objective assessments of complex program models, research studies have not been undertaken to evaluate integrated arrays of violence prevention strategies that most experts in the field recommend (Gottfredson, 2001). These gaps need to be filled to make available to schools a wider variety of evidence-based strategies.

In addition, few studies have been conducted on the effectiveness of evidence-based programs when implemented in routine settings, outside the direct purview and control of program developers. The studies that have been conducted reveal less robust effects than the original efficacy studies (Wilson et al., 2003). Part of the problem is that many schools do not have the capacity to replicate new and innova-

During the past 10 years, much progress has been made in establishing the effectiveness of violence prevention strategies aimed at the general population of students, at-risk students, and students already engaging in aggressive and violent behavior.

tive programs, even when substantial technical assistance is provided. A small but growing body of research has identified several organizational features that operate as barriers to effectively implementing such programs (e.g., lack of fiscal resources, lack of administrative and staff support, political and philosophical conflicts). Still, we know very little about how schools can address and overcome these barriers (Elias et al., 2000; Elliott & Mihalic, 2004).

Similarly, we are beginning to understand what is necessary to plan, select, and implement the most effective array of violence prevention strategies, but we do not know very well how to assist schools and school districts in following such procedures (Hunter, Elias, & Norris, 2001). For example, schools are generally ill-equipped to conduct needs and assets assessments and to monitor and evaluate progress on an ongoing

basis. Without such knowledge, there is little hope that the increasing number of evidence-based programs will be appropriately disseminated, adopted, and implemented. Increased and enhanced field studies are needed to create guidelines or templates for schools to follow.

Finally, we do not know very well how closely a replication site must adhere to the requirements specified by the developers of evidence-based programs to achieve success. Although one study of an evidence-based program suggested that only 60% of the curricular objectives needed to be covered to secure positive outcomes, this does not necessarily mean that 60% can or should be used as the litmus test for all programs (Botvin et al., 1990). Moreover, the tension between adherence to strict fidelity and program adaptation to local needs has not yet been resolved (Dane & Schneider, 1998; USDHHS, 2002).

IMPLICATIONS FOR PRACTICE, POLICY, AND RESEARCH

- Efforts to collect comprehensive data on implementation are crucial in helping to understand what works in routine school settings.
- Studies need to be undertaken on the factors and strategies that promote capacity and readiness to plan, select, and implement the most effective array of violence prevention strategies.
- The effectiveness of security strategies and policies, peer-led programs, and threat assessment and crisis response initiatives has not been adequately evaluated.
- Evaluations of comprehensive school-based strategies that include an integrated array of targeted programs and strategies need to be undertaken.

NOTES

1. In 2005, only 26 schools in three states (Pennsylvania, New Jersey, and South Dakota) were identified by state-defined criteria as persistently dangerous, reflecting the extraordinarily high bar set by the vast majority of states to avoid such designations.

2. Incident reports, reports of suspensions and expulsions, and police reports are very sensitive to political interests and labile school policies and are therefore far from objective and stable measures.

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