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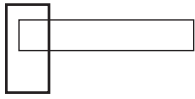
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How Can We Improve School Safety Research?

Ron Avi Astor, Nancy Guerra, and Richard Van Acker

The authors of this article consider how education researchers can improve school violence and school safety research by (a) examining gaps in theoretical, conceptual, and basic research on the phenomena of school violence; (b) reviewing key issues in the design and evaluation of evidence-based practices to prevent school violence; and (c) suggesting new directions for a translational science agenda that can inform policy and practice. The authors describe international empirical approaches that help match annual school safety monitoring data with specific evidence-based practices for each school site, school district, or region. The systemic exploration of successful large-scale applications of evidence-based programs at the district, regional, and state levels could inform theoretical paradigms, empirical databases, and practice.

Keywords: at-risk students; educational reform; school psychology; social context; student behavior/attitude; violence

The most important tools guiding research are empirically testable conceptual frameworks. However, despite multiple calls for more rigorous and contextually sound frameworks in the school violence research literature, few theories have been set forth that specifically consider aggression and violence in the school context (for exceptions, see Benbenishty & Astor, 2005, 2008; Jimerson & Furlong, 2006).

A Theoretical Foundation for School Violence Research

There is growing consensus among school violence researchers that conceptual and empirical work documenting the contexts of school violence is needed (e.g., Astor, Meyer, & Behre, 1999; Cornell, 2006; Debarbieux & Cooke, 2007). Some researchers aptly called for a deeper understanding of the “school” in school violence research (Furlong & Morrison, 2000). More research is needed that focuses on the contributions of the school context to school safety outcomes. Other researchers have called for stronger theoretical models that move the school to the center of an ecological theoretical model (Benbenishty & Astor, 2005).

Understanding School Violence in Context

The school context should be a central focus of school violence and safety theory because it is the milieu where the complex social

dynamics of school perpetration and victimization occur. Indeed, this perspective is consistent with evidence showing that in addition to family and community factors, school violence behaviors tend to be associated with social roles and organizational patterns in school subcontexts (Astor et al., 1999). Hence the research literature on school violence and safety is gradually beginning to integrate frameworks and measures of the physical, temporal, and social contexts of schools. However, more spatial-temporal research is needed on the basic social dynamics of students, teachers, and support staff on the playground and in restrooms, hallways, parking lots, along walking routes and bus routes to and from school, during class transitions, at dances and athletic events, and in other school contexts (e.g., Astor, Benbenishty, & Estrada, 2009).

Similarly, social-organizational factors such as high-risk peer relationships or interclique conflict, inadequate teacher training, teacher and student turnover, large class and school size, and the large presence of substitute emergency-credentialed teachers are examples of variables cited in the school reform literature as signs of social organizational dysfunction (Hess, 2008). These school context variables could also contribute to the increase or reduction in school violence rates (Bowen, Bowen, & Richman, 2000; Gladden, 2002).

Understanding the Interrelationships Among Types of Violence at School

Moving the school to the center of the theoretical model implies that all forms of violence associated with the school social context need to be understood both separately and as a whole. Over the past three decades, school safety research has gradually expanded to include a diverse array of types of behaviors, resulting in a broader concept of school safety. Behaviors currently subsumed under the umbrella of school safety and classroom discipline include what are alternately labeled *aggression*, *bullying*, and *violence*. They also range considerably in severity from aggressive behaviors such as verbal insults and social exclusion to more extreme forms of violence such as hate crimes, weapon use, sexual assault, and gang violence.

A crucial next step for school safety research will be to study the empirical relations between these specific behavioral outcomes in order to understand how they are empirically situated within the concept of school safety as a whole. To accomplish this goal, more conceptualization and research need to be aimed at carefully defining and linking these disparate types of behaviors (e.g., weapon use, sexual harassment, name-calling, or social exclusion). To date, researchers do not have a full epidemiological picture of school safety behaviors. A new generation of studies could map how these behaviors or subgroups of behaviors co-occur (or not) on school grounds.

Defining and Assessing a Broad Range of Behaviors

Understanding the co-occurrence of different forms of violence requires precise definitions accompanied by the development and use of reliable and valid instruments that specifically measure these behaviors. For example, even though some bullying research includes more general measures of aggression, most national and international estimates of bullying behaviors emerge from a set of only three to four questions (e.g., Akiba, Letendre, Baker, & Goesling, 2002; Nansel et al., 2001).

In recent years, the terms *bullying* and *school violence* often have been used interchangeably in the research literature (e.g., Meyer-Adams & Conner, 2008). However, categorical concepts such as bullying refer to a wide array of potential behaviors. From a strict theoretical perspective, *bullying* refers to aggression or violence based on an asymmetry in power between the perpetrator and victim and perpetrated on a recurring basis (Cornell, Sheras, & Cole, 2006; Olweus, 1993; Swearer, Espelage, Vaillancourt, & Hymel, this issue of *Educational Researcher*, pp. 38–47). Use of the term *bullying* does not necessarily pertain to a singular type of violent behavior (e.g., shoving, name-calling, weapon use, or exclusion). However, aggressive and violent behaviors can occur without an asymmetry in power and on a one-time basis. This loose use of terms clouds the epidemiological picture of school violence behaviors and can water down attempts to implement appropriately focused interventions (Benbenishty & Astor, 2005; Smorti, Menesini, & Smith, 2003). To move forward, a common set of behavioral anchors needs to be developed in addition to categorical concepts about types of students (such as being a bully or a delinquent youth). These anchors should include specific verbal, physical, bullying, property-related, sexual, and weapon-related behaviors.

The multiple and different forms of violence identified above should be investigated, as they relate to perpetration and victimization among students as well as between student groups (e.g., between ethnic and/or racial groups in school) and in the context of student–staff relationships (see Benbenishty & Astor, 2008; Khoury-Kassabri, Astor, & Benbenishty, 2008).

Empirically Exploring Multiple Perspectives

Schools are complex human organizations that bring together several interacting groups—students, teachers, teaching assistants, counselors and psychologists, social workers and nurses, support staff, principal, parents, and other relevant constituents in the community. Each group may have unique perspectives on school violence, including how safe the school is as a whole and how to address safety issues. Similarities and differences among these various perspectives may add important insights about the organizational functioning of the school. Major differences in perceptions may inform the implementation and sustainability of violence prevention programs. Benbenishty and Astor (2005) found that the discrepancies in self-reports of school violence rates among students, teachers, and principals were greatest in schools that had higher rates of victimization.

Creating Usable Empirical Distributions of School Violence in Every School District and Knowing Variations Between Schools Over Time

Understanding the prevalence of all co-occurring forms of school violence in a school district or at a school site has implications

for both basic science and intervention research. Combinations of social exclusion, sexual harassment, weapon carrying, gang activity, bomb threats, or bullying may require different intervention approaches if they occur alone on a campus or if they cluster in subgroups. School districts sometimes use one program (e.g., anti-bullying, social skills curriculum) for the entire district or provide numerous programs with little attention to how or even whether they are ever implemented (Gottfredson et al., 2000).

Understanding Cross-Cultural and Within-Culture Variability in Etiology and Prevention of School Violence

It is critical to examine variations in the epidemiology and etiology of violence in different cultural and ethnic groups both across and within countries. At a global level, it is unclear if programs developed in one country are relevant for prevention in other countries. For example, many of the bullying programs that began in Scandinavia are now being used in Japan, Australia, New Zealand, England, Israel, and the United States, with little empirically based documentation of their generalizability to other countries (Akiba, 2005; Akiba et al., 2002; Ttofi, Farrington, & Baldry, 2008). Further, there are many important sources of variability within countries or regions that may influence the display of school violence.

As an example of within-culture variability, studies are needed to better understand the relations between gender and school violence perpetration and victimization. There has been wide consensus that males are more likely to be both perpetrators and victims of serious violence (American Association of University Women, 2001; Zeira, Astor, & Benbenishty, 2002). Results are less clear for indirect types of aggression (see Attar-Schwartz & Khoury-Kassabri, 2008; Currie et al., 2004). The picture is even more complicated when considering the interaction between age and gender. For example, Benbenishty and Astor (2005) reported that the gap between the victimization rates of males and females grows with age, whereas Craig and Harel (2004) concluded that in most of the 24 countries surveyed in the Health Behavior in School-Aged Children study the trend was in the opposite direction, with smaller gender gaps among older students.

A deeper theoretical understanding of history, oppression, social hierarchy, and prejudice as variables connected with school safety is needed. Quite often, factors such as minority status, immigration background, and ethnic and cultural affiliation are strongly correlated with other important factors, especially poverty, education, and oppression (see Gregory, Skiba, & Nogeura, this issue of *Educational Researcher*, pp. 59–68). These high intercorrelations limit our ability to isolate and assess the independent role that each of these conceptually different factors plays. However, the same ethnic or cultural group that is associated with poverty, crime, and immigrant or minority status in one context may have a different status in another location (e.g., Jewish youth when compared in Israel vs. the United States or different U.S. regions, or with Asian or Hispanic youth from various countries or in various U.S. regions). Careful comparisons of such groups embedded in different social contexts may help sort out the relative roles of different aspects of group membership. For instance, immigrant and minority groups that are associated with economic marginality in one educational system may be the majority population in their native countries. Comparing levels and characteristics of school violence

within cultural groups that have different sociopolitical circumstances will contribute to our understanding of the relative roles of these types of contextual factors. There are many research challenges associated with correlational research on these variables. Stronger ecologically nested research designs that allow for and employ mixed analytical techniques (e.g., qualitative case studies with hierarchical linear modeling) could provide greater clarity on the independent, additive, and interactive relationships among these complex variables.

Research on How Policies Influence School Safety

Politicians frequently embrace the notion that students cannot learn when their schools are unsafe. In fact, national policy, such as No Child Left Behind, acknowledged this with the “persistently dangerous school” clause, allowing parents to find a safer school if their child’s school is deemed dangerous (Astor & Benbenishty, 2005). However, because of a combination of narrow definitions, high thresholds, and reluctance to report events, most states report that they do not have any persistently dangerous schools (Astor & Benbenishty, 2005). Unfortunately, there are few studies that provide empirical evidence to make important linkages between academics and safety (see Cornell & Mayer, pp. 7–15; this issue of *Educational Researcher*). Under what school organizational conditions would evidence-based programs for school safety actually improve academic outcomes for mathematics, literature, art, or writing?

Basic research has yet to explore in detail how the structural organizational patterns of a school transact with different forms of violence. We know little about how teacher supervision, classroom management expectations, suspension and expulsion rules, special education services, or established policies addressing issues such as sexual harassment, school bullying, or crisis intervention affect levels of school violence. Only recently have there been focused efforts to examine if there is research to support broadly implemented policies such as zero tolerance (American Psychological Association Zero Tolerance Task Force, 2008). Indeed, this blue-ribbon task force could not find studies that evaluated this policy.

There also is little basic research aimed at understanding public perceptions of the school violence problem, in terms of both severity and causes. This type of work is important because there are many school violence myths and stereotypes, often fueled by the international news media and a focus on isolated cases. Consequently, most people worldwide erroneously believe that school violence is on the increase, when the reverse is actually true—between 1994 and 2002 school violence rates displayed a steady annual decline, with a slowing of this decline since 2003 (Astor, Benbenishty & Marachi, 2009; Benbenishty & Astor, 2008).

Further, public perceptions of the causes of school violence often mirror the individual case history of the most recently publicized event. For example, after the school shootings of the 1990s, many news media reports made explicit connections between bullying victimization and the process of becoming a school shooter (see Borum, Cornell, Modzeleski, & Jimerson, this issue of *Educational Researcher*, pp. 27–37). There was little empirical evidence supporting this widely believed assertion. Thus, although bullying and victimization may have been experienced by a number of these school shooters, these experiences hold little predictive value when we attempt to identify the risk

of a school shooting on a national scale. Annually, studies show that there are millions of students who could be identified as bullies or victims of bullies but of course never become school shooters. Nevertheless, some countries mandated bullying policies and many school districts purchased anti-bullying interventions with the belief that these programs would help prevent school shootings, mass suicides, or other rare heinous acts (Smith, 2003).

Design and Evaluation of Evidence-Based Programs and Practices

In addition to the basic theoretical and research issues discussed above, considerable research effort over the past few decades has focused on the design and evaluation of evidence-based programs (EBPs) to prevent school violence and enhance school safety. A number of governmental and private entities have tried to identify and catalog EBPs in school safety and violence prevention. Table 1 provides a brief summary of some of these entities and how many model, effective, and/or promising programs have been found. Although each organization attempts to employ defensible selection criteria, there are significant differences in standards for inclusion, often based on agency mandates or diversity in standards for establishing EBPs (Mayer, 2006). As a consequence, programs deemed model by one organization may be rated as only promising by another, and so on.

In principle, the use of EBPs is a significant advance over untested programs; however, in practice there are many challenges to establishing a reliable evidence base for school safety and school violence prevention efforts. Some of these challenges are linked to imprecise definitions, lack of focused school violence research that identifies processes and mechanisms of change across multiple levels, difficulties in setting and maintaining scientific standards in real-world settings, and concerns about generalizability across gender, ethnicity, culture, and country, hindering the search for model programs from the extant research literature. Another important but infrequently discussed concern is whether to provide universal interventions for all students in a school or to target high-risk students through selected or indicated programs (Institute of Medicine, 1994). Given that the distribution of aggression is highly skewed, with a small group of students responsible for frequent and serious aggression, it is likely that these at-risk youth need intervention beyond general schoolwide programming (Metropolitan Area Child Study, 2002).

The Search for Model Programs

In the broader area of educational practices, there have been many challenges to reaching consensus on “what works” in well-defined academic areas such as beginning reading or middle school math (Slavin, 2008). These challenges emerged in the context of comparing different instructional methods or approaches: that is, whether Program A or Program B produced better results on a predetermined outcome. Consider the challenge of creating an evidence base for school safety and violence prevention where the subjects to be taught are not well established. The issue is not simply how best to teach a particular subject but what areas to cover in order to enhance school safety or reduce aggression. For instance, some aggression reduction programs emphasize individual skills, whereas others emphasize

Table 1

Selected Organizations and Systematic Reviews of Programs Addressing Youth Violence and Related Risk Factors

Organization/Review	Types of Programs Evaluated	Rating Levels (Number of Programs)
Center for the Study and Prevention of Violence ^a www.colorado.edu/cspv	Violence and drug abuse	Model (11) Promising (17)
Coalition for Evidence-Based Policy, Social Programs That Work ^a www.evidencebasedprograms.org	Education, crime, substance abuse, and poverty reduction	Effective (22) Small effects (1) Ineffective (3) No effects/adverse effects (1) Effective (56)
<i>Communities That Care: Communities That Care Prevention Strategies Guide</i> ^a http://download.ncadi.samhsa.gov/Prevline/pdfs/ctc/CTC%20Prevention%20Strategies%20Guide%20_pdf.pdf	Adolescent substance abuse, teen pregnancy, violence, school, dropout, and delinquency; focus on family, school, and the community	Effective (56)
National Registry of Evidence-Based Programs and Practices (NREPP) ^a www.nrepp.samhsa.gov	Adolescent violence and substance abuse	Website specifies outcome of 36 specific programs addressing violence and 137 interventions across all mental health areas—no rating provided
<i>Office of Juvenile Justice and Delinquency Prevention Model Programs Guide</i> , U.S. Department of Justice www.dsgonline.com/mpg2.5/mpg_index.htm	Preventing delinquency in youth	Exemplary (39; 20 for aggression/violence) Effective (80; 34 for aggression/violence) Promising (90; 36 for aggression/violence) Effective (34)
<i>Preventing Mental Disorders in School-Age Children: A Review of the Effectiveness of Prevention Programs</i> http://www.pde.state.pa.us/svcs_students/lib/svcs_students/Chapter12PreventingMentalHealthDisorders.pdf [This is no longer an active site for program review]	Risk reduction for psychopathology in school-age children and youth	Effective (34)
Mihalic, S., & Altmann-Bettridge, T. (2004). A guide to effective school-based prevention programs. In W. L. Turk (Ed.), <i>School crime and policing</i> (pp. 202–253). Englewood Cliffs, NJ: Prentice Hall.	School-based programs designed to enhance school safety, student academic achievement, and dropout prevention, and reduce truancy and suspension	Exemplary (6) Promising (17) Favorable (33)
Safe and Drug-Free Schools, U.S. Department of Education www.ed.gov/admins/lead/safety/exemplary01/panel.html [This is no longer an active site for program review]	Risk factors for and/or the prevention of substance abuse, violence, and other conduct problems at schools; making the school setting a safe, disciplined, and drug-free environment	Exemplary (9) Promising (33)
Sherman et al. (1997). <i>Preventing crime: What works, what doesn't and what's promising</i> . www.ncjrs.gov/works	Crime prevention	45 school-based studies examined and discussed
<i>Youth violence: A report of the Surgeon General</i> www.surgeongeneral.gov/library/youthviolence/youvioreport.html	Youth violence prevention and intervention and/or serious delinquency	Model 1 (violence prevention; 5) Model 2 (risk prevention; 2) Promising 1 (violence prevention; 6) Promising 2 (risk prevention; 13)

^aThese organizations provide ongoing program review and updates.

changing school climate. Further, as mentioned earlier in this article, the outcome is a broad array of behaviors that are connected primarily by the location of their occurrence (i.e., at school). It is also unclear whether success is determined by the safety of the school building or the behavior of students—is the goal of interventions to create safe havens where violence does not occur, or to teach students to be nonviolent wherever they

may be, or both? A police officer in every classroom might reduce school violence but have little impact on the expression of aggression in other settings.

There is a growing trend toward EBPs that focus more carefully on implementation issues. For example, the use of positive behavior supports is designed to improve the ecology of schools with detailed implementation achieved through planning, staff

training, technical assistance, and careful monitoring. Technological advances are helping schools adapt and evaluate these kinds of interventions at the school site level. For example, the School-Wide Information System is a Web-based monitoring system that provides a standardized tool for analyzing school disciplinary infractions and violence episodes (see Sailor, Dunlap, Sugai, & Horner, 2009).

Comparing programs based on different theories and targeting different outcomes. Most of the violence prevention approaches currently in use emerged from psychology and education and fall into four general categories: (a) psychoeducational programs, including social skills training, conflict resolution, and peer mediation; (b) behavioral or classroom management programs providing teacher training and consultation; (c) schoolwide programs to optimize school organization and enhance school climate; and (d) positive youth development programs that engage youth in structured community activities to help them explore their own interests, skills, and abilities. Each approach reflects a different theoretical model of how aggression is learned rather than a comprehensive framework that specifically considers violence in school settings.

In addition to psychoeducational programs, school safety is often framed within discipline and control policies. These policies include target hardening and zero-tolerance interventions. Target hardening involves making the school building a more difficult or less attractive target through architectural design, metal detectors, security cameras, and other measures to strengthen the security of the physical building (Kenney & Watson, 1998). Zero-tolerance policies, emphasizing the use of severe and predetermined consequences for violence and related acts (e.g., carrying a weapon), regardless of any mitigating circumstances, have dominated school discipline discourse since the 1990s (American Psychological Association Zero Tolerance Task Force, 2008). The assumption is that individuals who engage in violence will decrease this behavior in response to the deterrent or punishing effects of sanctions and that creating safer schools by removing disruptive students will lead to a more supportive school climate that will, in turn, reduce individual aggression.

Although some schools have embraced both types of approaches, combining control policies with psychoeducational interventions, program evaluations typically are designed to measure the impact of one type of program or the other. As a consequence, we can examine whether psychoeducational approaches have been effective and whether control policies have been effective, but not whether they work in a complementary (or counterproductive) fashion.

Establishing an evidence base: Internal validity in the real world. An important challenge for school-based violence prevention research is how to establish conditions that most closely approximate the scientific control found in laboratory settings. A particular challenge for future research is how best to approximate random assignment to intervention conditions, long considered the gold standard for evaluating program outcomes. There are several challenges for random assignment of violence prevention and school safety programs, including how to establish a no-treatment condition, the need for complex designs to provide adequate statistical power to test effects, and the problem of contamination from intervention to control conditions.

Fortunately, a number of new analytic techniques have emerged that can correct for possible nonequivalence between intervention and control groups. Propensity score matching is increasingly accepted as a method for approximating equivalence with nonrandom assignment (Haviland, Nagin, Rosenbaum, & Tremblay, 2008; Lindsay, Wright, Duku, & Willms, 2008). When evaluations include assessment of potential mediators of intervention outcomes, intervention research can also inform our understanding of relevant processes and mechanisms involved in reducing school violence.

Establishing an evidence base: External validity generalizability. One of the greatest difficulties for EBP research is the issue of generalizability, a concern that plagues any effort to identify EBPs in schools (Slavin, 2008). Most evaluations of school safety and youth violence prevention programs have analyzed efficacy of demonstration projects with a convenience sample under controlled conditions, closely supervised by researchers, and with adequate funding. Indeed, reviews and meta-analyses of program effectiveness suggest that routine practice programs have much smaller effects than well-funded demonstration projects (Wilson, Lipsey, & Derzon, 2003). Yet identifying the conditions under which programs can take hold and for whom they are effective is extremely important in determining whether programs can be exported to other schools.

Although much of the research on school-based violence and antisocial behavior prevention and intervention strives to provide information that will generalize to a wide spectrum of students and schools across a country and internationally, evaluations often are conducted with a nonrepresentative sample (e.g., low-income urban students) and without specification of likely moderators. Moderators of outcomes may be specific to students (e.g., Is a program more effective for high-risk students, girls or boys, specific ethnic groups, etc.?) or to a given setting (e.g., What is the level of school resources?). This is particularly important when selecting and implementing programs in high-violence schools with the greatest need and often with the lowest resources and greatest challenges (inadequate funding, high teacher and staff turnover, etc.). It may be that model programs that show favorable results in high-resource communities do not yield comparable results in resource-poor settings. For example, the Metropolitan Area Child Study provided 2-year individual social skills and small-group training, classroom management, and family intervention for elementary school children from low- and moderate-resource urban schools. The program was effective in reducing aggression among younger high-risk children (Grades 2–3) but only in the moderate-resource schools—in the low-resource schools the program evidenced iatrogenic effects, perhaps due to the increased burden placed on already stressed school settings (Metropolitan Area Child Study, 2002).

The importance of program implementation. In addition to the complexities inherent to comparing conceptually distinct approaches emphasizing different causal mechanisms, models of change, and diverse indicators of effectiveness, the search for model programs is complicated further by considerations of the conditions and adequacy of implementation. This includes concerns about the specificity of program content, adequacy of support for implementation, and stability of the school environment to

sustain violence prevention and school safety programs. Indeed, it may be that specific aspects of how a program is implemented are just as important as what is done (Benbenishty & Astor, 2007).

Synthesizing Evaluations of EBPs for School Safety and Violence Prevention

An important development in recent years has been a well-articulated effort to synthesize findings of similar studies through reviews and meta-analyses. Given the difficulty of drawing conclusions about cause and effect from a single study in the context of a growing number of program evaluations in the arena of school safety, the quest for a clearly defined list of EBPs or “what works” has taken center stage.

However, from a scientific perspective, there are still clear challenges in interpreting evidence across multiple studies. Consider the concerns about effect size as an example. An effect size helps to determine whether a statistically significant difference has any practical concern (Huberty, 2002). However, the meanings of effect sizes are influenced by sample size. Studies employing small samples (if not weighted in the effect size equation) contribute just as much to the calculation of the effect size as a more elegant randomized control group design with a large number of participants. Such a calculation is thought to give unfair weight to these smaller studies in the results of the meta-analysis. Researchers, however, differ in their opinions of just how sample size should be addressed in the calculation of effect size, and some argue that sample size should be a specified eligibility criterion for meta-analysis (Sanchez-Meca & Marin-Martinez, 1998). Further, the common standardized mean difference measure of effect size is very sensitive to violations of the assumption of normality. This is particularly relevant for understanding youth violence outcomes, as aggression and violence are highly skewed. Fortunately, a number of more robust nonparametric alternative methods to calculate effect size have been suggested (for a discussion of alternative methods, see Kirk, 1996; Rosenthal, 1994).

Meta-analytic reviews typically are more sensitive to issues of internal validity (i.e., scientific integrity) than issues of external validity and practical utility. If the scientific bar is set too high, there may be very few studies that meet these standards. Further, the scientific bar often neglects real-world issues such as feasibility, cost, and ease of implementation. For this reason, “what works” compendiums often include programs with minimal, inadequate, or conflicting findings on effectiveness but high levels of portability and support for implementation. In some cases, the market rather than the scientific findings can drive selection of violence prevention programs (Elliott et al., 2003). Indeed, there have been few studies examining how EBPs for school safety and violence prevention are adopted, that is, how school decision makers select specific approaches and programs.

The Need for Translational Research

There is a glaring absence of rigorous school safety studies that explore how school districts, municipalities, counties, or regions implement or support widespread school safety programs. Unfortunately, many school safety EBPs that have shown effects in carefully controlled studies do not appear to be equally effective when scaled up to the school district or regional levels (Astor & Benbenishty, 2005).

For instance, one large California district attempted to implement the evidence-based Second Step program in all its schools. This program is endorsed by more than a dozen state, federal, and clearinghouse entities (Committee for Children, 2009). Five years later, few of the more than 300 local schools that implemented the program had any data showing that the program had reduced violence at their sites. This scenario is common for other EBPs and safety practices implemented in school districts across the globe.

From a research stance, these large-scale and costly implementation failures are likely associated with a lack of conceptualization and translational science models on how to help school districts implement school safety programs across many schools. Most schools did not have a baseline of school violence behaviors before the EBP was implemented (Benbenishty & Astor, 2008). School sites and school districts commonly use EBPs without reliable local data suggesting that the program is even needed. Schools that receive Safe Schools/Healthy Students grants are required to demonstrate need in their applications. Studies based on these schools would help illuminate the value of local data when implementing a local program. However, many schools nationally cannot show constituents whether programs have been effective at their sites. Statewide monitoring systems that track every school would be an improvement and help identify programs that work within different regional and cultural contexts.

The difficulties experienced in moving school safety interventions from controlled studies to institutionalized school practices parallel translational difficulties faced in many other fields such as medicine (Mullen, Bledsoe, & Bellamy, 2008). National reports have documented that on average only half of all recommended health care practices are implemented. The situation may be even worse for prevention and health behavior change interventions (Glasgow & Strycker, 2000; McGlynn, 2003; McGlynn et al., 2003). As Glasgow and Emmons (2007) note, “Many practices have met the rigorous review standards of the U.S. Preventive Services Task Force and the Community Guide to Prevention Services, but few have been broadly or consistently implemented” (p. 414).

Concerns over these issues led to the emergence of “translational science,” which became a top priority of leading institutions such as the National Institutes of Health (U.S. Department of Health and Human Services, 2006). Several barriers to translation in medicine have been identified that are relevant to school violence prevention. For example, Glasgow and Emmons (2007) identified four sets of barriers to the translation of health findings into practice. These include the characteristics of (a) the research base (e.g., using unrepresentative samples), (b) the intervention (e.g., expensive), (c) the target setting (e.g., limited resources), and (d) the interactions among the three sets (e.g., intervention is not appropriate for target population).

Early formulations of translational research suggested a unidirectional process from science to practice. More recent conceptualizations have moved away from this unidirectional model toward a collaborative and cyclical process with the setting. For example, Gredig and Sommerfeld (2008) presented an epistemological reformulation of the idea of knowledge transfer from science to the field and offered a model of cooperative knowledge

production based on a process that brings together knowledge from multiple sources (hybridization). This participatory approach has also been reflected in the community-based participatory research (CBPR) movement. CBPR is based on a partnership that actively involves community partners in all aspects of the research process, giving the community a standing equal to that of the researchers (Cook, 2004; Israel, Schulz, Parker, & Becker, 1998). Clearly, these issues are relevant to translation of EBPs in the field of school violence prevention.

Building Monitoring Systems as a Foundation of Translational Science

Local and regional monitoring efforts could provide a data-based solution to implementation problems and simultaneously enhance researchers' ability to improve school violence theories. In an effort to establish accurate regional data, local districts, states, and national organizations have initiated surveillance systems, indicator systems, local crime-mapping programs, and surveys monitoring student victimization, drug use, and health-related behaviors (e.g., California Department of Education, 2008; National Center for Injury Prevention and Control, 2002; Regents of the University of Michigan, 2009; School Accountability Report Card—LAUSD, 2008; WestEd, 2009).

Surveillance and monitoring are the backbone of the public health approach to the prevention of youth violence (U.S. Department of Health and Human Services, 2001; Thornton, Craft, Dahlberg, Lynch, & Baer, 2008). Surveillance reveals the magnitude of a problem, tracks it over time, and uses the information gained from monitoring to help shape actions to prevent violence. Such epidemiological monitoring systems, when applied at the local or regional level, have the potential of providing schools and districts with the information required to formulate policies and make EBP decisions based on local data. However, despite the widespread global existence of indicator and monitoring systems, many schools do not have information on their own sites. Few districts have openly documented procedures or measures to integrate this information for school improvement purposes. This type of research on data-driven processes is already under way in the school reform movement surrounding organizational practices and academic data (Datnow, Hubbard, & Mehan, 2002; Park, 2008). The application of these methods to school safety would be an important area for future research.

The nation's largest continuous school violence surveillance system is the California Healthy Kids Survey (WestEd, 2009). The California Department of Education requires all school districts to administer the California Healthy Kids Survey every 2 years—which is the case for 85% of the more than 9,000 California school sites and in all school districts. The survey is funded to meet the requirements of Title IV of the No Child Left Behind Act and in response to state and federal requirements that schools implement the Principles of Effectiveness—to collect and use data to assess student needs, justify program funding, guide program development, and monitor progress in achieving program goals. The survey has multiple modules addressing health issues, including but not limited to substance use, school climate, physical health, exercise and weight, foster care, gang issues, and youth empowerment issues.

Israel is one of the countries experimenting with the use of local monitoring systems that connect academic outcomes with school safety conditions. Monitoring data are being used to match schools with EBPs and track progress (starting in 2007) in 3,000 schools in Israel (Benbenishty & Astor, 2007).

The effort from the Israeli Ministry of Education involves providing specialized training on how to understand, interpret, and disseminate the data on school safety, academic progress, school climate, and teacher–student relationships to others on the campus. At least one teacher or administrator on each of Israel's 3,000 campuses is trained each year to understand the local data (Rama, 2009). In addition, educational psychologists and counselors undergo similar training in interpreting local data. This includes a wide array of skills, including how to present the data to different audiences, how to foster a dialogue over data, how to help match programs or progress to data measures, and how to use data constructively. More than 800 pilot schools went through training with the Ministry of Education (Chana Shadmy, personal communication, September 9, 2008; Ministry of Education, Israel, 2009; Rama, 2009) to better understand and use their localized school safety data. The monitoring data showed that there were significant reductions in school violence outcomes in more than half the pilot schools (Ministry of Education, Israel, 2009). This kind of process involves retraining existing professionals on campus for the ongoing use of data in the implementation process.

Using EBP and Data With a Bottom-Up Approach

The use of monitoring data and EBP can be a disempowering process if done with a top-down approach, as it may limit stakeholder participation, investment, and ownership in the change process. School violence intervention researchers have encouraged the active engagement of schools, communities, youths, teachers, and parents as the central components in successfully implementing school safety programs (Astor, Benbenishty, & Marachi, 2009; Rogers, Morrell, & Enyedy, 2007). Monitoring systems such as the California Healthy Kids Survey involve student and teacher surveys. These comprehensive surveys could be seen as the voices or views of local school constituents (Astor & Benbenishty, 2005). In fact, the Centers for Disease Control and Prevention and other organizations have advocated for authentic, data-driven community approaches to stem youth violence (Thornton et al., 2008). Yet few research studies examine the reliability or validity of the processes necessary to make this kind of community implementation fit each school.

Finding Positive Ways to Use Monitoring Data

Statewide or districtwide monitoring systems could be used to identify schools that have significant violence reductions over time as models for other schools. Astor, Benbenishty, and Estrada (2009) used such a database of schools to identify and learn from schools with very low violence rates that are situated in high-violence communities. Schools that have tackled issues of community–school violence are often able to provide mentoring and guidance to those settings in the midst of crisis. This way, schools struggling with implementation issues have the freedom to learn from a cadre of other schools that are demonstrating successful grassroots and implementation efforts. In these schools, understanding the sometimes discrepant perspectives of students,

teachers, administrators, and parents as they relate to school safety has been critical. The Israeli Ministry of Education is currently employing such a system to identify “green light” schools that serve as models for schools with implementation challenges.

Concluding Comments

More contextually sound research is needed to better understand the basic dynamics surrounding the phenomena of school violence. A conceptual unification of research agendas that currently focus exclusively on separate types of violent outcomes could provide a clearer empirical picture of how all forms of school violence co-occur on school campuses. This will require instruments with a broader array of behavioral outcomes applied to diverse samples.

Theoretical paradigms are needed to more carefully outline how safety issues intermingle with the day-to-day internal social and organizational patterns of schools. This can be accomplished with stronger research linkages between the school safety and school reform literature. Furthermore, basic research that explores within-culture and between-culture variations along these dimensions could serve as a basis for a stronger theory of school safety.

More rigorous studies are needed to find EBPs that have greater external validity. Replication is the key for establishing validity, and very few programs have shown evidence of being effective after being expanded on a large scale. Translational science concepts may help in developing evidence-based implementation procedures that further the reliability of EBPs. Blending existing large-scale state and national monitoring systems to provide data on the selection and use of EBPs could allow local schools to adapt programs for more effective use and more successful outcomes. Finally, more studies are needed that focus on identifying model schools that have shown great reductions in school violence rates. Learning new practices from a wide array of remarkably safe schools could provide insights on the different ways schools have tackled the problem.

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