The recent media hype over school shootings has led to demands for methods of identifying school shooters before they act. Despite the fact that schools remain one of the safest places for youths to be, schools are beginning to adopt identification systems to determine which students could be future killers. The methods used to accomplish this not only are unproven but are inherently limited in usefulness and often do more harm than good for both the children and the school setting. The authors’ goals in the present article are to place school shootings in perspective relative to other risks of violence that children face and to provide a reasonable and scientifically defensible approach to improving the safety of schools.

School violence, having been dubbed a crisis, permeates the national consciousness and media outlets. This concern, moreover, has gone beyond simple statements and speculations. A heightened awareness of the potential tragedy of a school-related violent incident has prompted school administrators, law enforcement professionals, and mental health professionals to put into place methods for identifying and intervening proactively with potentially violent students and situations. Many communities have seen curriculum changes, the adoption of “safe school” policies, new weapons-reporting requirements, and increased efforts to refer problem students to mental health professionals. For example, several years ago, New York City spent over $28 million dollars on metal detectors (Kemper, 1993), and numerous school districts have implemented mandatory school uniform policies to cut down on gang identification (Stephens, 1998). After the shooting at Columbine High School, the principal distributed a memorandum requesting students to report on other students whom they deemed to be demonstrating maladaptive behavior (e.g., dressing oddly, being loners; Aronson, 2000). Currently, professionals seem open to trying just about anything to combat the perceived dangers of school violence.

In the midst of these activities, it is important to note that such policy changes are fueled primarily by graphic images of children killing and being killed at school rather than by actual numbers indicating an epidemic of violence. Data from the National Crime Victimization Survey and the School Crime Supplement, for example, suggest that there is virtually no difference between the rates of criminal victimization in schools in 1989 and the rates of victimization in 1995 (Snyder & Sickmund, 1999). Other examinations of the figures regarding adolescent deaths indicate that violent deaths are a rare event, with less than 1% of the homicides and suicides among school-age children occurring in or around school grounds (Kachur et al., 1996). Moreover, the rate of violent crimes committed by juveniles remains low during the school day, but it spikes at the close of the school day and declines throughout the evening hours (Snyder & Sickmund, 1999), indicating that school hours are probably the safest time of the day for adolescents.

Yet, somehow, the images of the violence at Columbine, Paduah, and Santee are more persistent than the realities of the situations connected with the 99% of school-age victims who meet their fate when school is not in session. That students are very unlikely to be assaulted in the school setting and that urban adolescents are safer in their schools than on their way to or from school do not emerge as key points in most discussions of school violence. As Joseph Stalin, of all people, noted in another time, “A single death is a tragedy, a million deaths is a statistic” (as quoted in Bartlett, 1980, p. 766). Unfortunately, there now may have been enough tragedies to precipitate action.

An attractive strategy for addressing school violence is to increase efforts at early detection of and intervention with adolescents who are likely to commit these horrible acts. One of the most common reactions to the adolescents who opened fire in Paduah, Columbine, or Santee is to ask, “How could someone not have known that this adolescent was in trouble?” The problem, of course, is that it is not often clear exactly what to look for, who should have looked for it, or what should have been done if someone had seen something. Indeed, in postmortems of these situations, one often picks up signs of distress or despair in these adolescents, but one is rarely sure if the level or types of indicators found would have been enough to make even a vigilant and caring adult do something markedly different than what was done. After all, for every killer youth, there...
are many others with the same behaviors or attitudes who
never come close to killing their classmates.

The inability to see clear markers of trouble in these
cases should reveal something. It should make clear the
daunting nature of the identification task taken on by many
school administrators and mental health professionals.
Identification of adolescents who are at high risk for
committing serious, public acts of violence poses many inher-
ent challenges; considering these can lead psychologists to
think more realistically about where to direct their energies
for interventions for school violence.

The Characteristics of Adolescent Violence and the Identification
Process

The first challenge facing any system for identifying ado-
lescents who could commit serious acts of violence in
school is that the behavior being predicted is a rare event.
There are severe restrictions on the ability of any predictive
strategy (even if reasonably accurate) to identify true posi-
tives for a low base-rate behavior without also identifying
a large number of false positives (Hart, Webster, & Men-
zies, 1993; Meehl, 1954). Identification of large numbers of
false positives is not a problem if such identification causes
no harm (Morris & Miller, 1985), but the ratio of true
positives to false positives matters greatly if all identified
individuals are stigmatized or if their opportunities are
limited. One way to avoid the low base-rate problem is to
expand the definition of the violent outcome being pre-
dicted, effectively converting many false positives into true
positives. If one includes bullying, threats, and fistfights
in the definition of school violence, the base rate increases
dramatically, and the ability to predict who might be in-
volved in these activities may increase. According to the

Centers for Disease Controls and Prevention’s 1997 Youth
Risk Behavior Surveillance System, 37% of high school
students said they had been in a physical fight during the
past school year (Centers for Disease Control and Preven-
tion, 1997); approximately 80% of youths have indicated
that they engage in some form of bullying behavior such as
pushing, teasing, or threatening others (Bosworth, Esp-
elage, & Simon, 1999). With this expanded definition,
however, comes a blurring of the behavior being examined
and a good chance that the processes behind these behav-
iors will become more heterogeneous. Taken to extremes,
this approach amounts to dealing with a problem that is
hard to solve by choosing to solve a different problem. If
the identified problems are too broadly defined, the inter-
vention strategy is reduced to meeting the needs of the
general pool of troubled adolescents found in any school,
and the hard-to-solve problem of identifying potentially
violent adolescents is dealt with by choosing to solve the
problem of disruptive students.

The second major obstacle to identifying students who
are likely to be involved in serious school violence is that
the event being predicted is usually embedded in a social
and transactional sequence of events. One thing that is clear
about youth violence in general and seemingly about many
of the recent tragedies is that this behavior has a heavy
social component (Staub & Rosenthal, 1994). Youths who
engage in criminal behavior, both violent and nonviolent,
are not usually loners. For example, 60% of juvenile of-
fenders who committed assault were with peers at the time,
and 90% of juvenile offenders who committed robbery
were with adolescent peers (Zimring, 1981, 1998). More-
over, youths who are aggressive not only seek each other
out but also form coercive cliques (Cairns, Cairns, Neck-
erman, Gest, & Gariepy, 1988; Coie & Dodge, 1998),
which in turn provide a training ground for subsequent
delinquent behaviors (Parker & Asher, 1987; Patterson,
Reid, & Dishion, 1992). Predictably, then, it appears that
for both lethal and nonlethal incidents, school violence is
more likely to occur in larger rather than smaller schools
and in "ownroom" areas such as hallways, dining areas, and
parking lots (Astor, Meyer, & Behre, 1999). Furthermore,
violent events in the schools are part of a chain of actions
and reactions, often among numerous other individuals
(e.g., taunting peers, disinterested girlfriends or boyfriends,
uninterested parents; see Fagan & Wilkinson, 1998), and
bystanders appear to be a critical component of the esca-
lation of disputes into violence (Decker, 1996; Tedeschi &
Felson, 1994). Previous research has shown that these
events do not occur in a vacuum and that there are numer-
osous rationales for and pathways to the violent act. Identi-
cification based only on the characteristics of an individual
neglects these highly salient social and transactional as-
pects of school violence.

The third major obstacle to the task of identification is
that the individuals being assessed are adolescents whose
characters are often not yet fully formed. Research in the
areas of physical development (Buchanan, Eccles, &
Becker, 1992), psychosocial development (Cauffman &
Steinberg, 2000; Steinberg & Cauffman, 1996), and even
brain development (Baird et al., 1999; Giedd et al., 1999; Sowell, Thompson, Holmes, Jernigan, & Toga, 1999) suggests that adolescents are still changing and that their characters are not yet fully formed. Assessing adolescents, therefore, presents the formidable challenge of trying to capture a rapidly changing process with few trustworthy markers. Diagnostic systems for adolescents are not as well developed as those for adult disorders, many disorders do not emerge clearly until young adulthood, and the diagnostic tools used to assess adults are often of questionable value when applied to adolescents. Despite these limitations, adult diagnoses or concepts periodically have been applied to children, adolescents, or both without taking into account important developmental factors that may affect the applicability or validity of these constructs (for a review, see Achenbach, 1995). For example, some characteristics that are viewed as risk factors for psychopathy among adults (e.g., impulsivity, little concern for future consequences) are common and transitory aspects of normal adolescent development and may be easily misinterpreted when using standard approaches (Edens, Skeem, Cruise, & Cauffman, 2001). These realities make assessments of adolescents by mental health professionals using tools designed for adults difficult to interpret meaningfully.

Finally, it is not clear what interventions are likely to work with violence-prone adolescents. Part of the reason for identifying an adolescent who is at high risk for serious violence is to prevent the occurrence of an incident. This can be done either by imposing restrictions on the adolescent (e.g., enforcing some schedule or activity restrictions) or by altering the processes within the adolescent or in his or her life that might be contributing to the violence (e.g., enrolling the adolescent in an anger-management group). Unfortunately, most of the single-focus interventions for violent adolescents have demonstrated limited effectiveness (McCord, Widom, & Crowell, 2001; U.S. Department of Health and Human Services, 2001), and the most successful interventions with antisocial adolescents work in multiple community settings and focus on building specific skills (Lipsey & Wilson, 1998). Schools can certainly provide valuable prevention programs, such as social skills training, but these settings are not generally well equipped to deliver individualized, broadly based services to small numbers of identified students.

Recasting the Problem as Risk Management

This dismal picture does not justify inaction. The limits of identification and intervention are real and substantial, but they should be used to inform people about reasonable strategies rather than discourage them from facing the problem. They highlight the need for professionals to take a realistic view of what might be accomplished through the development of early identification systems and to focus planning and programming in a way that increases the likelihood of success.

Perhaps the first step is to approach the problem as one of ongoing risk assessment rather than prediction. A great deal can be learned in this regard from the progress that has been made over the past 20 years regarding management of violence in mentally ill adults (see Borum, 1996; Otto, 1992). In this area, as in the area of school violence, the goal is to predict and prevent rare, socially embedded violence for which little effective intervention technology exists. Trends in preventing violence in mentally ill adults, however, have been moving away from framing the problem as one of predicting an event and toward the approach of managing risk (Heilbrun, 1997). Ongoing risk assessment and management have replaced prediction of dangerousness, a shift with subtle but important implications for policy, practice, and research (Skeem & Mulvey, in press).

This new approach recognizes that violence risk is a dynamic, rather than static, process. Although it is possible to sort individuals into high- and low-risk groups generally, the task of managing risk effectively requires an ongoing evaluation of the factors that increase or decrease the likelihood of a violent incident in individuals at relatively high risk already (Monahan & Steadman, 1996; Mulvey & Lidz, 1998). A risk management approach thus starts out much like a more traditional predictive strategy by using available indicators of generalized risk for adolescents and some structured data-collection scheme to sort individuals into a high- or low-risk status. This identification process, however, is only the first step toward avoiding violent incidents. The next step is to monitor the ongoing changes in the lives of these individuals for transitions or turning points that may further increase the likelihood of violence.

Framing the problem in this way might well change the focus of school violence programs. Rather than developing more elaborate and potentially discriminatory or arbitrary approaches to choosing those who might be at highest risk, researchers could direct more resources into
ongoing involvement with the group of individuals who are clearly high risk. The natural reaction in the face of disastrous violence in schools is to look for a system that can pick out the people who may react similarly in the future. The reality of prediction, however, is that this is a largely futile task. The fuzziness of the categories, the base rate of the behavior being predicted, and the time frame to which the prediction applies all must compromise any identification scheme for schoolyard killers. Therefore, rather than being used to make a marginal improvement in a sorting algorithm to identify troubled students, resources may well be better spent monitoring the activities of those students who would be identified under just about any risk-assessment method.

Need for a Focus on School Environment

Although easier to do than accurately modeling individual behavior using a violence-prediction machine, keeping abreast of the ongoing activities of troubled and troubling adolescents is no easy feat. Now, as always, the best source of information about the activities of students in a school is other students. A long line of research has demonstrated that students are well aware of the problem children in their own classrooms (for a review, see Hartup, 1992). For example, since the advent of sociometric research in 1934, researchers have been able to identify which youths are liked or disliked by their peers, as well as future delinquent behaviors among youths (Rubin, Bukowski, & Parker, 1998). Ignoring this potentially rich source of information in favor of structured psychological assessment places unwarranted faith in the powers of individual assessment. Peers and teachers who talk with problem students can often provide the most useful information about when such students are in trouble.

For such information to flow from students to administrators requires an atmosphere where sharing in good faith is respected and honored. Giving information about the problems that another student is having or about threats or scary activities going on in a school environment can occur only if students feel that they are (and will remain) safe and that a reasoned response will result from their reporting. Getting accurate information about the activities of high-risk students on an ongoing basis, therefore, rests heavily on establishing and maintaining a supportive school environment.

Ironically, many schools appear to be taking the opposite approach. Instead of working to foster a sense of belonging, schools are implementing zero-tolerance policies that virtually guarantee an unreasoned response to any reported problem. For example, when a student is expelled or suspended for carrying aspirin (in violation of a zero-tolerance drug policy), that student is likely to hold the school administration in contempt. It is also likely that other students will withhold information from the administration to avoid such disproportionate punishments. This change in school atmosphere is all too real. For example, in a New York Times op-ed piece written by a high school student from Littleton, Colorado, the student remarked as follows:

High school students in Littleton now have a new excuse to get out of class for a few extra minutes: the lockdown drill. . . . Apart from the lockdown drills, there have been few changes in security procedures. The greatest change has been the increase of paranoia. For example, a few weeks after the shooting I was working on a graph assignment with a friend. We arranged the points on the graph to spell out a humorous but inappropriate message. A month earlier, my friend would have said, "The teacher's going to be mad." This time he said, "If we turn this in, we'll be expelled." There's the difference. (Black, 2001, p. A23)

Empirical evidence, meanwhile, seems to support the contention that promoting healthy relationships and environments is more effective for reducing school misconduct and crime than instituting punitive penalties (Nettles, Mucherah, & Jones, 2000). For example, a study of 7th-, 8th-, and 9th-grade students found that commitment to school and belief in the fairness and consistent enforcement of school rules are the most important elements in reducing school crime (Jenkins, 1997). Similarly, the National Longitudinal Study of Adolescent Health found that among a nationally representative sample of 7th–12th graders, attachment to family and school served as protective factors against violence (Franke, 2000), a result consistent with earlier research indicating that adolescents with a low commitment to school are at increased risk of engaging in violent behavior (Cernovich & Giordano, 1992; Farrington, 1991). Also, a study of school-based violence-prevention interventions found that between 1993 and 1997, elementary schools that focused on the broader school environment appeared successful in changing violence-related behavior (Howard, Flora, & Griffin, 1999). Finally, the most powerful predictor of adolescent well-being is a feeling of connection to school (Resnick et al., 1997), and students who feel close to others, fairly treated, and vested in school are less likely to engage in risky behaviors than those who do not (Resnick et al., 1997). Each of these studies suggests that a key factor in preventing school violence is students' positive relations to their school environments. Students who are committed to school, feel that they belong, and trust the administration are less likely to commit violent acts than those who are uninvolved, alienated, or distrustful.

Conclusion

In sum, preventing violent incidents in school does not require either more sophisticated methods for assessing students individually or a magical, uniform method for intervening with them for a short while after they have been identified. It seems instead to rest largely on developing a positive and supportive organizational climate in a school. A crucial component of any school violence program is thus a school environment where ongoing activities and problems of students are discussed, rather than tackled with structured assessment instruments. Such an environment promotes ongoing risk management, which can be achieved only with the support and involvement of those closest to the indicators of trouble.
It is also worth noting that school violence is rarely just about what happens in school. Gun-related violence outside the school is a better predictor of weapon-related victimization at or during travel to and from school than is the dangerousness of the school environment itself (Sheley, McGee, & Wright, 1995), and neighborhood conditions such as poverty, population turnover, and crime rates are the strongest predictors of school violence (Laub & Lauritsen, 1998). Community incidents are carried into the school environment, just as the effects of the school day's events linger on after dismissal.

Although connecting schools with families and communities is often given as a mantra for school reform, it is worth channelling once more when discussing interventions to prevent school violence. The indicators of trouble for violence-prone adolescents can come from a variety of sources, and often, the only way one can obtain a clear picture of what is moving an adolescent toward violence is by looking at the adolescent’s world from the broadest perspective. Strategies designed to address school violence must recognize the interdependence of school violence with neighborhood and family conditions.

This call for an emphasis on organizational issues for the prevention of school violence reflects a recognition that there will never be a technology that matches the desire to find and control the uncontrollable events of life. Violence of the sort seen recently in schools is horrific and compels society to reestablish order in the face of chaos. Unfortunately, the technology of predicting rare events will always be a poor substitute for solid human relations and sound organizational management. Establishing school environments where students feel connected and trusted will build the critical link between those who often know when trouble is brewing and those who can act to prevent it.

REFERENCES


