



RISK FACTORS IN SCHOOL SHOOTINGS

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ABSTRACT. *Nine incidents of multiple-victim homicide in American secondary schools are examined and common risk factors are identified. The literature dealing with individual, family, social, societal, and situational risk factors for youth violence and aggression is reviewed along with existing risk assessment methods. Checklists of risk factors for serious youth violence and school violence are used in reviewing each school shooting case. Commonalties among the cases and implications for psychologists practicing in clinical and school settings are discussed. © 2000 Elsevier Science Ltd*

VIOLENT DEATHS IN schools are tragic events that affect not only those individuals directly involved, but also many others in the schools and neighborhoods where they occur. Violent deaths at school have been the focus of a great deal of recent attention, particularly the series of events that has been labeled “school shootings” by the media. These cases have received a great deal of media attention due to the nature of the settings and the assailants. They have differed in many ways from the patterns of school violence most prevalent during the past two decades. They have taken place in smaller cities and towns and have not involved rival gangs, narcotics trade, or other previously recognized risk factors found in high-density urban settings. The assailants have been boys from primarily middle class or affluent families, many of whom have no previous criminal records. The attacks do not appear to be motivated by pursuit of secondary gain, and appear to be acts of angry young men seeking to kill and injure multiple victims (Christian, 1998, March 26).

Many of the media accounts of these crimes describe “good kids” who have suddenly become murderers without showing prior histories of antisocial behavior. The events have been described as an “epidemic,” which has promoted a climate of fear among children and adolescents, their parents, educators, and policy makers. School staff are being cautioned to remain alert to “warning signs of violence” (Centers for

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Disease Control, 1999b). This raises troubling questions about whether it is possible to make informed and accurate judgments of risk or safety of students. Consequences of both false positives and false negatives in this situation are sobering, and the ethical issues are complex (Grisso & Appelbaum, 1992). In addition, there is little information available to professionals to guide them in addressing such youth who commit these high-profile crimes (Furlong, 1999).

Violence and death disproportionately affect children and youth in the United States. According to the Centers for Disease Control (1999a), rates of homicide among youths 15 to 19 years of age reached near record levels in the latter half of the 1980s and continue to be among the highest ever recorded in the United States for this age group. Between 1981 and 1991, annual homicide rates among males 15 to 19 years old increased 154% (from 12 to 33 per 100,000). Rates began to decline in 1994, and dropped 25% between 1993 and 1996. In 1996, rate of homicide among males 15 to 19 years of age was 26 per 100,000, which represents a decline of approximately 12% in one year. While this is an encouraging trend, the numbers continue to be unacceptably high.

Less than 1% of all homicides among school-aged children (5–19 years of age) occur in or around school grounds or on the way to or from school (Kaufman et al., 1998). There were 173 school-associated violent deaths between July 1, 1994 and June 30, 1998, and an additional 24 during the 1998/1999 school year. Most were homicides involving use of firearms. Deaths occurred in communities of all sizes in 25 states. The total number of events has decreased steadily since the 1992/1993 school year; however, the total number of multiple-victim events has increased (National Consortium on Violence Research, 1998). During the past 4 years, there was an average of five multiple-victim events per year. This is compared to an average of one event per year in the 3 years from August 1992 through July 1995. Thus, while the total number of events of school associated deaths has decreased, total number of multiple-victim events has increased.

These multiple-victim events are rare; however, they capture an enormous amount of media attention. The resulting climate of fear in schools is having an impact on students' readiness and capacity to learn, hiring and retention of teaching staff, openness and accessibility of the campus, student rights to privacy, physical building and grounds, the quality of the learning environment in general, and the emotional well-being of students and teachers (Elliott, Hamburg, & Williams, 1998). This has resulted in changes in local and state laws, school discipline policies and procedures, and attitudes and perceptions of children and youth about their safety in school and in society in general (Centers for Disease Control, 1999b). The Bureau of Crimes Statistics reports that 9% of all students in secondary schools fear that they will be attacked or harmed at school and avoid one or more places at school for fear of their own safety. Nationwide, 4% of students had missed 1 or more days of school during the 30 days preceding the study because they had felt unsafe at school or while traveling to or from school (Kelly, Huizinga, Thornberry, & Loeber, 1997). The climate of fear generated by the media coverage of the multiple-victim events has been used to justify actions against students by schools that would previously have been viewed as excessive. Concerns surrounding school shootings are leading directly to expulsion and suspension of students for minor and, at times, noncriminal acts. These school exclusions may be particularly harmful for children who are already experiencing behavioral and social difficulties. There is an understandable concern for the safety of

children in school; however, there is a potential for overreaction to minor events. The Oregon legislature recently passed a bill that requires that any student found in possession of a weapon at school be suspended immediately, pending a psychological evaluation to determine whether that student poses a serious risk to the safety of others (SBO 555). The qualifications and training of those who will perform these evaluations has not been specifically addressed.

In summary, youth violence is becoming more lethal. It appears that while homicides in the school are rare events, they are claiming more victims per incident. These well-publicized multiple-victim events have resulted in changes in the public perceptions of school safety and in laws and policies that affect the lives of children and youth on a daily basis (Trone, 1998). These events have been cited as a rationale for school exclusion or labeling of young people, which may result in adverse effects on their educational opportunities and possibly on their social functioning and identity development as well. As rare events, it is not clear whether patterns can be discerned which will assist in identifying youth at risk for this kind of behavior; however, it is possible that study of these events will assist professionals in education and mental health in responding to public concerns about risk in a more informed and deliberate manner.

Many different explanations have been offered for youth violence (Harpold & Band, 1998). Bad parenting, violent popular culture, mental illness, unhealthy school climates, and availability of firearms have all been targets of blame (National Consortium on Violence Research, 1998). There are many competing theories that seem to suggest different paths of identification of those at risk, and of intervention. The purpose of this article is to review the recent literature on the causes and correlates of serious youth violence and to provide an overview of models of risk assessment that have been developed from this literature. Our literature review will focus on what is known about violence among boys. There are indications that, in many ways, aggression among girls develops and is expressed differently than for boys (Pepler & Slaby, 1994). Male juveniles are arrested for violent offenses more than six times as often as females (Scott, 1999). The multiple-victim school crimes to date have been committed by boys, which makes this literature most pertinent to understanding these events. A subset of the incidents of multiple-victim violent assaults in schools will be examined relative to available models of risk assessment in order to determine whether there is a fit with this type of high profile incident. Common risk factors identified in these cases will be discussed in relation to recommendations for practitioners in addressing community concerns about risk assessment and early intervention.

The goal of this article is not to suggest methods of prediction of rare events, but to enhance understanding of a phenomenon that is causing widespread fear and apprehension. Costs of misidentification and labeling of children as dangerous are very serious, as are those associated with failure to recognize those in need of help.

RISK FACTORS FOR YOUTH VIOLENCE

Multiple-victim violent assaults in schools have not been studied as a discrete category of events because of their infrequency and idiosyncratic characteristics. It is not yet clear whether they represent a class of violent offenses that share common correlates and predictors. At present, they may be best viewed as a subset of serious violent of-

fenses committed by juveniles. As a research category, serious violent offenses include homicide, rape, aggravated assault, and kidnapping (Loeber & Stouthamer-Loeber, 1998). While there may be differences among causes and correlates for different offenses within this larger group, available research on juvenile violence has primarily viewed this group of activities as an aggregate (Kellerman, Faqua-Whitley, Rivera, & Mercy, 1998).

Previous research on risk factors that may increase the risk of serious violence during adolescence and young adulthood may be clustered in the categories listed in Table 1. In the past, researchers have tended to adopt a particular category or single factor and focus exclusively on the relationship of a single variable to violent behavior. In recent years, the emphasis has shifted to interactional models of causation that reflect a complex interplay of individual, social, and contextual variables in the etiology of violent behavior (Cairns & Cairns, 1994). A review of the literature in each of these categories of risk factors is helpful in considering how they may interact to exert varying degrees of influence for a particular individual in a given set of circumstances in the course of their development. Violent behavior has traditionally been viewed as a subset of behaviors within the broader contexts of delinquency and aggression

In the following sections, research findings on risk factors identified in Table 1 will be reviewed. These factors will then be considered in the context of an interactional model in understanding how they contribute to the risk for violence. Developmental considerations in applying such risk factors to children of different age groups will be discussed along with models of the developmental course for violence.

Individual Factors

Several biological/medical factors have been studied as possible predisposing factors for aggressive and violent behavior. Prenatal trauma and pregnancy complications have been found to correlate with later officially recorded violence, though findings on this and the methods of study have varied considerably. Kandel and Mednick (1991) found that 80% of youth arrested for violent offenses had a history of significant birth and delivery complications compared with 30% of property offenders and

TABLE 1. Risk Factors for Youth Violence

Individual	Family	School/Peers	Societal/ Environmental
Medical/physical condition	Poor monitoring	Antisocial peer group	Poverty
Difficult temperament	Exposure to violence	Low school commitment	Neighborhood disorganization
Impulsivity/hyperactivity	Child abuse/neglect	Academic failure	Media violence
Psychiatric conditions	Parental substance abuse	Large schools	Access to weapons
History of aggression	Ineffective parenting	Gang involvement	Prejudice
Substance abuse	Marital conflict	Social isolation	Gender-role expectations
Attitudes/beliefs	Poor attachment	Peer rejection	Cultural norms
Narcissism	Antisocial parents	Bullying	

47% of nonoffenders. There is evidence that prenatal trauma is predictive of later violence only in children raised in unstable home environments (Mednick & Kandel, 1988). Prenatal trauma has been found to be predictive of hyperactivity and impulsivity, which may be one pathway from the trauma to violent behavior. Direct damage to brain mechanisms that inhibit violent behavior is another possible mechanism. Other researchers have not found a relationship between delivery complications and violence (Farrington, 1995). The overall relationship between pregnancy and delivery complications appears to be small and inconsistent across studies, however there is general consensus that there is sufficient evidence to suggest that this is an area that warrants further study (Loeber & Farrington, 1998).

The possibility of a genetic contribution to violence has been studied in the adult population and has received some support. Across studies, similarities between monozygotic twins are higher than among dizygotic twins on measures of aggression (Cairns & Cairns, 1994). When the behavioral outcome in adult studies is limited to violence, results of twin studies suggest only a modest relationship. This relationship appears to be more variable among children (Carey, 1996), which suggests that common environment may play a more important role for children than adults (Cairns & Stoff, 1996). Hypothesized mechanisms for genetic transmission of a vulnerability to the development of violent behavior include serotonergic neurotransmission that modulates impulsivity, and variations in autonomic responsiveness. Development of new techniques of molecular genetic analysis has expanded the capabilities of researchers seeking genetic alleles contributing to aggressive behavior.

A low resting pulse rate has been found to be weakly predictive of violent crime among adults and delinquent behavior among adolescents. Wadsworth (1976) reported that 81% of violent offenders in the British National Survey of Human Health and Development had below average heart rates. He found that lower mean pulse rate taken at a medical examination at age 11 was predictive of delinquent behavior, particularly that involving aggression. This finding has been replicated in Great Britain in studies of aggressive behavior among school-aged boys (Raine & Jones, 1987). It is hypothesized that a low resting heart rate indicates underarousal, which may predispose some individuals to aggression and violence, and may underlie a fearless, sensation-seeking temperament (Loeber & Stouthamer-Loeber, 1998). Research indicates that heart rate-behavior relationships represent stable individual differences, however, the nature of this relationship is not well-understood (Cairns & Cairns, 1994).

Numerous researchers have found a relationship between aggressive and violent behavior and the constellation of behaviors that includes hyperactivity, attention or concentration deficits, and impulsivity (Loeber & Southamer-Loeber, 1998). In an analysis of four studies of this relationship, Lipsey and Derzon (1998) found a significant correlation between hyperactivity and violence with 1,059 subjects. Regardless of the measures used, there appears to be a consistent relationship between hyperactivity in childhood and later violent behavior. Teacher ratings of children's attention problems independent of hyperactivity were found to predict violence in both adolescent and adult males (Lipsey & Derzon, 1998). Concentration problems are also predictive of academic difficulties, which themselves are related to later violence. This suggests that multivariate models may be most useful for understanding violence.

Farrington (1989) found a relationship between impulsivity in childhood and later recorded violence. Restlessness and impulsivity are thought to limit the decision-making process to considering the present rather than the future. Such individuals may tend to select an environment supportive of risky activity (Elliott et al., 1998). Strong relation-

ships have been found between risk-taking measured in later childhood and early adolescence and later violence. Overall, there appears to be a positive relationship between hyperactivity, concentration or attention problems, impulsivity, and risk-taking with violent behavior. Children who display a fearless, uninhibited temperament are thought to be more difficult to socialize, as they do not respond as readily to parenting techniques such as reinforcement and punishment. As adolescents, they may be drawn toward activities that provide excitement, danger, and adventure (Pepler & Slaby, 1994).

Other deviations in temperament have also been associated with antisocial behavior (Giancola, Mezzich, & Tarter, 1998). The term *difficult temperament* has been used by researchers to describe children and infants who tend toward behaviors and affective states characterized by irritability, withdrawal from novel stimuli, negative mood, intense reactions to stimuli, low adaptability to change, distractibility, irregularities in biological functions, and poor attention and persistence. There is considerable overlap in this construct with attention deficit disorders. A difficult temperament has been found to be associated with behavioral problems and aggression in young children and adolescents (Kingston & Prior, 1995).

The relationship between violence and mental disorder has been the subject of controversy over the past 20 years (Monahan, 1992). Past research with hospitalized patients has been confounded by the fact that violent events are often precipitating events for hospitalization. Research during the past 20 years has examined the relationships between violent behavior among adults and mood disorders, schizophrenia and other psychotic disorders, and psychopathy.

In a review of four studies of mental disorder among violent offenders and community samples, Monahan (1992) found that prevalence of schizophrenia is approximately 3 times higher in the jail and prison samples than in the general population samples; the prevalence of major depression is 3 to 4 times higher; prevalence of mania or bipolar disorder is 7 to 14 times higher, and prevalence overall of any severe disorder is 3 to 4 times higher. Prevalence of schizophrenia among respondents who endorsed five questions indicating violent behavior in the past year was approximately 4 times higher than among respondents who did not report violence, and prevalence of affective disorder was three times higher. Similar studies are needed with children and adolescents. While the vast majority of people with these disorders are not violent, there does appear to be a higher risk of violence in this population because of the disordered perceptions, assumptions, attributional biases, and disordered processes of thinking and affect that accompany these diagnoses.

There have been a number of studies examining a possible relationship between psychopathy and violent behavior (Crowell, Evans, & O'Donnell, 1987). These studies have made the distinction between instrumental violence for goal-oriented purposes, such as robbery, and reactive violence in response to provocation. While many violent events may represent a combination of these elements, psychopathy as measured by Hare's (1991) Psychopathy Checklist appears to be associated with instrumental violence, which is more manipulative and dishonest, rather than impulsive. Reactive offenders have not been found to score significantly higher on measures of psychopathy (Crowell et al., 1987).

Some recent studies have examined the relationship between narcissism and violence. It has previously been assumed by many that low self-esteem underlies violence. Some recent studies have found a connection between narcissism, negative interpersonal feedback, and aggression (Bushman & Baumeister, 1999). Narcissists are assumed to be emotionally invested in establishing their superiority, and while they care

passionately about such superiority, they may not be convinced of it. They may respond violently with a desire to punish or defeat someone who has threatened their highly favorable view of themselves (Bushman & Baumeister, 1999). This hypothesis has received support in research with college students and will need further study to determine its applicability to children and adolescents.

There is a consistent finding across many studies that as the seriousness of youth offending increases, so does seriousness of drug and alcohol use, both in terms of frequency and types of drugs used (Farrington, 1995; Loeber & Farrington, 1998). A greater proportion of serious and violent offenders uses alcohol, marijuana, and other illicit drugs, and on the average use these drugs more frequently than do other offenders or nonoffenders. While the relationship is strong, the underlying mechanisms are not clear. These substances may increase the likelihood of violent behavior due to effects of altered self-presentation, intensified emotions, increased arousability, impaired interpersonal communication, and poor judgement regarding danger and consequences (Elliott et al., 1998). It is also possible that the relationship is spurious and simply reflects the fact that both behaviors are dependent upon other underlying social and personal factors (Loeber & Stouthamer-Loeber, 1998). It may be that the behaviors are reciprocally related, so that delinquency and drug use are mutually reinforcing (Smith & Thornberry, 1995).

Distortions in social-cognitive processes may be a significant factor in the etiology of juvenile violence (Lochman & Dodge, 1994). Attributional biases are thought to lead juveniles to misinterpret neutral social acts as provocations directed at them, which may trigger behaviors that serve as a stimulus for aggression (Dodge, 1980). Dishonesty, antisocial beliefs and attitudes, attitudes favorable to violence, and hostility toward police have all been found to be correlated with later violence among males (Loeber & Stouthamer-Loeber, 1998). It is not clear whether antisocial attitudes are symptoms of the same underlying construct as violence or whether these attitudes predispose individuals to violent behavior. Lochman and Dodge (1994) studied social-cognitive processes of aggressive and nonaggressive boys at preadolescent and early adolescent age levels. The social-cognitive variables they examined included processing of social cues, attributions, social problem solving, affect labeling, and outcome expectations. They found that moderately aggressive boys differed from nonaggressive boys on attributional biases. Their results showed a continuum with violent boys displaying more extreme social-cognitive dysfunctions than the moderately aggressive boys.

The individual factor that seems to have the most predictive value for violent behavior is an early pattern of aggressive behavior. In a review of four different studies examining the relationship between early aggressive behavior and later violence, Hawkins et al. (1998) found that aggressive behavior measured from age 6 through 13 has been shown consistently to predict later violence among males. This relationship holds even in hyperactive samples (Loney, Kranner, & Milich, 1983). Many boys who manifest aggressive behavior during early childhood do not commit violent offenses later in life, however, early aggression is strongly predictive of later violence. While it is predictive, it is not an explanatory factor, because both aggression and violence are presumed to measure the same underlying construct (Hawkins et al., 1998).

Family Factors

Parental and family factors that may increase risks for development of violent behavior are classified in to four domains: family demographics, parental characteristics,

parenting techniques, and parent-child relationships (Loeber & Stouthamer-Loeber, 1986). Lack of supervision has been found to be one of the strongest predictors of the development of delinquency and violence in children (Farrington, 1995; Loeber & Stouthamer-Loeber, 1986; Olweus, 1980). In their research with antisocial boys at the Oregon Social Learning Center, Patterson, Reid, and Dishion (1992) found that when boys are allowed to have more unsupervised time at age 9 or 10, risk of engaging in antisocial activities in general increases. Lack of monitoring appears to place children at risk for involvement with deviant peers, antisocial activities, including violence and substance abuse.

Conflict, aggression, and violence among family members, particularly between parents, has been identified as an influence on the development of violent behavior in children (Elliott et al., 1998). Farrington (1995) found moderate correlations between parental conflict and self-reported violence in adolescence. McCord and Ensminger (1995) also reported a correlation between marital disharmony and officially recorded violent crime in a sample of 201 boys. Maguin et al. (1995) found that family conflict at age 10 was not associated with high levels of self-reported violence at age 18; however, high levels of family conflict at ages 14 and 16 were correlated with self-reported violence at age 18. These results illustrate the need for developmental models in understanding juvenile violence. Elliott (1994) also found that individuals who were exposed to high levels of violence between their parents were more violent as adults.

Child neglect and abuse have been studied as risk factors for youth violence, with the assumption that violence is an expression of the rage and helplessness experienced by child victims of maltreatment (Garbarino, Kostelny, & Dubrow, 1991). Social learning has also been suggested as a mechanism underlying this relationship. Physical abuse, sexual abuse, emotional maltreatment, and neglect were combined in the construct of maltreatment in research by Smith and Thornberry (1995). They found that a history of maltreatment significantly increased the likelihood of later self-reported serious and violent delinquency, but not minor delinquency. These findings held when race/ethnicity, social class, family structure, and mobility remained constant. Those who experienced the most serious forms of maltreatment exhibited the highest delinquency rates, although the differences were not large. In a meta-analysis, Hawkins et al. (1998) found a significant correlation between child maltreatment and violence. For sexual abuse and physical abuse independently, the correlation was small. The correlation for neglect and violence was significantly more robust, suggesting that neglect may be the form of maltreatment most predictive of violence.

Parental substance abuse and criminality have been associated with delinquency and violence among young males (Howell, 1997; McCord, 1979; Robins, West, & Herjanic, 1975). Zucker (1987) conducted studies and literature reviews and found a strong relationship between parental alcoholism and both substance abuse and delinquency problems for the child. He theorizes that the alcoholic parent is so ineffective in employing parenting skills that the child is placed at risk for antisocial behavior. Farrington (1989) found that existence of convicted parents or siblings was related to self-reported and official offending. Other studies have also found that antisocial parents tend to have antisocial children (Loeber & Stouthamer-Loeber, 1986). It is not clear whether this relationship is best explained by heredity, social learning, poor child-rearing practices, or a combination of all of these factors.

Antisocial and violent behavior have been found to be associated with family situations in which behavior management practices are inconsistent and aversive punish-

ment strategies are used (Sprague, Sugai, & Walker, 1998). McCord (1979) found that level of aggressiveness used by parents in disciplining their children predicted convictions for personal crimes into the subjects' 40s. Wells and Rankin (1988) found a curvilinear relationship between parental strictness and self reported violence in 10th grade males. Boys with very strict parents reported the most violence. Boys with very permissive parents reported the second highest level of violence. Those whose parent were neither very strict nor permissive reported the least violence. Those with parents who punished them in a consistent manner were less violent than those who received inconsistent punishments. Farrington (1989) found that an authoritarian parenting style, poor parental supervision, harsh discipline, a cruel/passive neglecting attitude, and parental disagreement about child-rearing predicted later violence measured both by self-reports and convictions. The effects of parenting practices seem to interact with child temperament factors. Bates, Pettit, Dodge, and Ridge (1998) report that a resistant temperament was more strongly related to externalizing behaviors in families who use fewer restrictions, such as scolding, and prohibitions in response to potentially harmful acts. This use of restrictions did not include harsh punishments. Children with resistant temperaments whose families used more restrictions to manage their behavior displayed lower rates of externalizing, aggressive behaviors. With nonresistant children, high restriction forecasted more behavior problems, and low restriction forecasted fewer.

Patterson, DeBaryshe, and Ramsey (1989), and Patterson et al. (1992) have researched parenting practices in families with antisocial, delinquent boys and developed a model of a coercion mechanism that takes place in these families beginning in early childhood. They have observed that escape contingencies and positive reinforcement are the payoffs for overt antisocial behaviors, such as whining, teasing, tantrums, and hitting, in families with antisocial boys. The child's antisocial behaviors are often met with either no response or an aversive response by their parents. A reciprocal escalation of aversive behaviors and responses may then ensue, which ends with the parent giving up and withdrawing. Such withdrawal of the parent in response to the child's increasingly aversive behavior then serves to reinforce that behavior.

Lack of family bonding and involvement of parents in a child's activities have been implicated in the development of violent behavior among children. Unfortunately, few studies have examined family bonding specifically. Farrington (1989) found that sons at age 12 whose fathers did not engage in leisure activities with them reported more violent behaviors as teenagers and adults. Low parental involvement in their son's education at age 8 also predicted later violence. West and Farrington (1977) found that children of families who spend a substantial amount of leisure time together were at lower risk for delinquency than were those whose families spend little time together. In general, lack of family interaction and involvement in children's lives seems to add to the risks for future delinquency and violence. Lack of family bonding and involvement tends to be characteristic of families who also display other significant risk factors, including lack of supervision, neglect, substance abuse, and less effective parenting practices in general.

Farrington (1989) studied the relationship between separations from parents and later violent behavior. He found that parent and child separations before age 10 predicted violence in adolescence and adulthood. Similarly, it has been found that a single-parent household at age 13 is a predictor of violence before age 18 (Henry, Avasalom, Moffitt, & Silva, 1996). It appears that while some stressful events in childhood are not significant risk factors for violent behavior, disruptions in the parent-

child relationship may be important. It is important to consider that parent–child separations often occur in the context of other identified familial risk factors and that a direct relationship cannot be established at this point.

School and Peer Factors

The social environments of peer groups and schools can function as additional risk or protective factors for children whose individual characteristics and family backgrounds create vulnerability for delinquency and antisocial behavior. The child's circle of friends or degree of isolation, involvement in and commitment to school, social and academic skills, and level of perceived social support are all important. As children enter adolescence, they rely increasingly on peers as models for developing values and behaviors. Peers can serve as powerful selective reinforcers for antisocial actions and beliefs (Patterson et al., 1992). Children who behave in an aggressive or antisocial manner at school are more likely to experience social rejection and school problems. This may in turn strengthen their ties to antisocial peers (Dodge, Coie, Pettit, & Price, 1990).

Several studies have found positive relationships between association with a deviant peer group in adolescence and later violence (e.g., Hawkins et al., 1998). Delinquent peers may contribute to the spread of violence during adolescence, but not later in adulthood (Moffitt, 1993). Elliott (1994) found that associating with peers who disapprove of delinquent behavior may inhibit later violence. Elliott and Menard (1996) used a path analysis of longitudinal data to show that current involvement with deviant peers contributes significantly to current levels of self-reported delinquency. Poor parental monitoring practices has been found to be strongly related to association with deviant peer groups and self-reported delinquency (Elliott, 1994). Howell (1997) reports that 82% of juvenile offenders in court committed their offenses with two or more companions. Youth gangs are identified as one type of law-violating youth group. Gang delinquency tends to be more violent, serious, and chronic than non-gang delinquency (Bjerregaard & Lizotte, 1995). Gangs and other deviant peer groups tend to provide a climate of acceptance and encouragement of violence. Violence seems to be a way of demonstrating one's toughness and establishing status within a deviant and antisocial peer group. Children who fail to achieve school success, approval of prosocial peers, satisfying family relationships, and a sense of personal efficacy may experience stress that increases their vulnerability to the influence of gangs and other antisocial peer groups (Elliott et al., 1998).

A bond or commitment to school may be an important protective factor against crime and violence (Catalano & Hawkins, 1999). Williams (1994) found that bonding to school was strongly linked to reduced violence among boys. Maguin et al. (1995) assessed the relationships between self-reports of low commitment to school at ages 10, 14, and 16 and self-reported violent behavior at age 18. A low commitment to school at age 10 did not predict later violence, but low commitment to school at ages 14 and 16 did. The available evidence seems to support the hypothesis that a low degree of bonding to school predicts later violence, though results are mixed, possibly due to the different indicators of school commitment used in studies (Hawkins et al., 1998).

Academic failure has been consistently found to predict later delinquent behavior (Maguin et al., 1995). Farrington (1989) found that low academic attainment in elementary school predicted later convictions for violence offenses. In a synthesis of research findings on predictors of violence among children ages 5 to 11 and adolescents

ages 12 to 14, Lipsey and Derzon (1998) found that poor school performance and attitudes were strongly linked to violent or seriously delinquent behavior at ages 15 to 25. The relationship was stronger for adolescents than for younger children. While it would be wrong to characterize most delinquent youth as having academic trouble in school, and to characterize most of those having academic trouble as delinquent, the overlap is substantial. Patterson, Reid, and Dishion (1992) has proposed that noncompliant behavior tends to have a profound impact upon a child's academic skills development. Children who are less academically engaged in the classroom due to their disruptive behavior tend to have more trouble learning. The relationship between academic failure and delinquency may be a two-way interaction.

Schools are highly vulnerable to interpersonal violence, and there appear to be some common characteristics among schools which show higher rates of violence among students (Morrison, 1994). Many unsafe schools have been found to be characterized by overcrowding, poor supervision, lack of caring but firm disciplinary procedures, student alienation and anger at school routines and demands for conformity, insensitivity to multicultural factors, and rejection of at-risk students by teachers and peers (Walker, Irvin, & Sprague, 1997). Research suggests that school violence is influenced by school policies regarding discipline, security, and dropping out, and by small group interactions that develop within the school, which encourage youths to respond violently to routine provocations (Dwyer, Osher, Warger, & Bear, 1998; Elliott et al., 1998; Horowitz & Kraus, 1987; National School Safety Center, 1999b). The classroom environment at the elementary level has been found to exert considerable influence on development of aggressive behavior among boys. Garbarino (1999b) reports that first grade is a pivotal experience for aggressive boys. Those with a strong teacher who maintains order and provides clear guidelines for acceptable behavior tend to show less aggression later in childhood. Those in classrooms with a weak teacher and chaotic environment tend to show more aggression in later grades and tend to form or join more antisocial peer groups.

In its study of incidents of multiple victim violent events in schools, the Federal Bureau of Investigation (FBI) (Harpold & Band, 1998) has found that social isolation and social rejection are characteristic of most of the youths who committed these offenses prior to the fall of 1998. Patterson et al. (1992) have proposed that a bidirectional relationship exists between antisocial behavior and peer rejection. It is their impression that peer rejection begins soon after an antisocial boy is introduced into a group setting. Over a period of years, such rejection solidifies his antisocial status. In studies of socially isolated and socially rejected children, Gottman (1977) found that socially rejected children were more likely to be aversive in their interactions with peers. It was also found that rejected children, rather than isolated children, were at most risk for later adjustment problems. Dodge (1980) has found that aggressive children tend to mistakenly attribute hostile intentions to the peer group members who reject them. These attributions form the basis of a child's "social map" or belief system about their social world. Conduct-disordered children tend to have social maps that are characterized by hypersensitivity to negative social cues in the environment, lack of recognition of positive social cues, a readily accessible repertoire of aggressive responses, and a belief that aggression is successful in solving problems (Garbarino, 1999b). Children with these negative social maps who behave aggressively are often rejected by peers when new groups are formed (Dodge et al., 1990). Thus, it appears that aggressive behavior is a stimulus for peer rejection, peer rejection may then reinforce negative attributions, and this in turn may foster increasingly aggressive and antisocial behavior.

Societal Factors

Community factors that have been found to correlate with higher rates of youth violence include poverty, discrimination, disorganized neighborhoods, media violence, and access to firearms. Research at The Center for the Study and Prevention of Violence at the University of Colorado (Laub, 1998) has found that within a certain area, factors such as low socioeconomic status, high population turnover, and high housing density are strong predictors of violence. These conditions lower a neighborhood's capacity for social organization and its ability to exert informal social control. Low socioeconomic conditions do not appear to have a direct effect on neighborhood violence. Residents in lower income neighborhoods tend to have more difficulty establishing the formal and informal social ties within the community necessary to control crime and violence (Garbarino, 1999a, 1999b). Neighborhoods characterized by predominantly single-parent households tend to have fewer social resources and networks necessary for developing and maintaining local institutions, and for helping parents deter children from delinquency and violence (Elliott et al., 1998).

A community's ability to use informal social controls appears to be important in understanding local levels of violence and disorder (Laub, 1998). Participation in formal networks, such as neighborhood associations, schools, and churches tends to be lower in disorganized communities, leaving fewer opportunities for young people to participate in activities that foster resilience (D. Cohen, 1998). There also are indications that while social disorganization affects neighborhood crime, the relationship also operates in the opposite direction. Violence in a community can change the population composition of a neighborhood, increasing the social disorganization.

D. Cohen (1998) studied the relationship between social organization and violence in different geographical regions of the United States. He found that in the Northern states, tighter social organization as reflected by family stability, community stability, and religious affiliation tended to decrease receptivity to violence, whereas it appeared to have no effect in the South and West. Nisbett (1993) attributes this to a "culture of honor" in these regions, which endorses violence as a means of protecting oneself from insults and threats to the self, family, and property. Elliott et al. (1998) note that physical prowess and willingness to engage in violence to resolve interpersonal conflicts are the hallmarks of adolescent masculinity in American society. Displays of toughness are valued among many young men, and this cultural value may form the background that enhances the effects of other societal, family, school, and individual risk factors for violence.

Poverty, prejudice, and discrimination tend to coexist in many communities. These factors interact to produce negative psychological as well as economic consequences for minority youth and families (Howell, 1997). McCord and Ensminger (1995) found a relationship between retrospective accounts of racial discrimination/prejudice and self-reported violence among African American study participants in the Woodlawn Study. Those who reported incidents involving racial discrimination were more violent as adults than those who reported no discrimination (McCord & Ensminger, 1995).

Violent content in movies, television, music, and video games has been described as contributing to a "culture of violence," which may influence children to behave more aggressively (Eron & Huesmann, 1984). Studies of the effects of television violence on children and teenagers have found that children may become immune to the horror of violence, imitate violence they observe on television, and gradually accept violence as a way to solve problems (Murray, 1999). Children with emotional, behavioral, learning, or impulse control problems may be more easily influenced. In a meta-analytic re-

view of experimental studies on effects of media violence on viewers' aggression in unstructured social interaction, Wood, Wong, and Chachere (1991) found that media violence enhances children's and adolescents' aggression in interactions with strangers, classmates, and friends. Their research review was designed to address criticisms of the artificial experimental constructions used in earlier studies of the effects of television violence on aggression. They also present evidence suggesting that susceptibility to media effects is likely to peak during early adolescence. In his review of the literature on adolescents and the media, Strasburger (1995) identified four conditions that will increase likelihood that violent media will help guide future behavior:

- Is the violence rewarded or punished?
- Is it justified and without any consequences?
- Is it pertinent to the viewer?
- Is the viewer susceptible to it?

How these four dimensions influence behavior depends upon the particular portrayal and the individual viewer. While media violence is usually not a danger for an adolescent whose life is healthy and happy, individual risk factors including isolation, mental health problems, and drug abuse may increase a child's vulnerability to its effects (American Academy of Child and Adolescent Psychiatry, 1999).

Access to a potentially lethal weapon, especially a firearm, increases likelihood that a lethal event will result from an aggressive or violent altercation (Valois & McKewon, 1998). During 1998, there were more than 6,000 expulsions for possession of lethal weapons in American schools. Guns are readily available to many adolescents (Howell, 1997). The National Consortium on Violence Research (1998) reports that 1 out of 5 guns in American homes are stored loaded and unlocked. Most guns used in school homicides come from family members. Numerous epidemiological studies document a direct relationship between the presence of accessible firearms and the risk of homicide and suicide for young people (Strasburger, 1995). There seems to be little disagreement about the danger of access to lethal weapons for young people who may already be at risk for aggressive and violent behavior.

Situational Factors

Several factors outside of the individual appear to influence how a potential for violence becomes an actuality in a given situation (Loeber & Farrington, 1998). These factors do not cause violence; however, they help to explain why a person may be more likely to commit a violent act in some situations than in others. Presence of a weapon, consumption of alcohol, presence of bystanders, motives of the offender, and relationship of the potential offender to the potential victim have all been identified as possible situational predictors of violence (Sampson & Lauritson, 1994). It has been difficult for researchers in this area to establish the relationship of specific situational factors and violent events because most data are drawn from incidents when violence occurred. Data on situations with similar situational factors where violence did not occur are usually not available.

Elliott (1994) examined the role of stressful events as triggers for children's violent behavior with youth ages 11 to 17. He used a self-report scale with items tapping serious illnesses in the family, unemployment, divorce or separation, and serious accidents. He did not find a relationship between these events and violent offending. The

relationship between residential mobility and violence was explored by researchers with the Seattle Youth Sample (Maguin et al., 1995). They found that number of residential changes in the past year assessed at age 16 predicted self-reported violent behavior at age 18, but residential mobility at age 14 did not predict violence at age 18. They concluded that residential moves may have fairly short-term effects on behavior due to disruptions in the neighborhood and school bonds and that these effects decrease with time as new bonds are formed.

Presence of bystanders and environmental cues have all been examined as possible contextual risk factors for violence. In a review of research on situational risk factors, Elliott et al. (1998) conclude that when a dispute between two parties of the same sex occurs, presence of third parties increases the chance that a verbal disagreement will turn violent. Achieving a favorable social identity, compelling or deterring others, and obtaining justice have been identified as motivational factors in violent events. Within the context of interpersonal disputes, presence of bystanders may become a means of demonstrating one's toughness, proving one's superiority over others, and defending one's "honor" to prevent damage to an idealized self-image (Baumeister, Smart, & Boden, 1996).

Carlson, Marcus-Newhall, and Miller (1990) conducted a set of studies examining the effects of situational cues, including presence of weapons and name-mediated cues on aggression. In the situations with name-mediated cues, the name of the recipient of the aggression was paired in advance with negative in violent stimuli, such as salient hostile verbalizations or presence of a bumper sticker with a hostile theme. They found evidence that both weapons and name-mediated cues augment aggressive responses in negatively aroused subjects. The weapons effect was found primarily when subjects were naive to the purposes of the study. They conclude that when people are angered, the resulting increase in their aggression will be greater if situational cues associated with either violence or unpleasantness are present. The National Consortium on Violence Research (1998) has found that most school assaults take place during arrival time at school, during lunch and passing periods, and at dismissal. They attribute this to presence of large numbers of students who are potential offenders, victims, and bystanders, and to the relative lack of supervision at these times. School restrooms have been found to be one of the most dangerous settings in schools, again due the lack of supervision. Reentry of students into the general population following a disciplinary action has also been found to be a high-risk situation for school violence.

The relationships among the participants in violent events and their perceptions, judgements, values, and expectations are all important in understanding an individual's motivation (Eron, Gentry, & Schlegal, 1994). Elliott et al. (1998) suggest that decisions to commit an act of violence are influenced by the expected value of the outcome, expectations of success in reaching it, anticipated costs of the acts, and the likelihood of the costs. The relative importance of each of these factors for any individual will depend upon a broad range of psychological variables. It has been found that in many instances of school violence, assailants have reported later that they had felt victimized by groups of their peers because of teasing, bullying, and harassment (American Psychological Association, 1999; Garbarino, 1999a; Harpold & Band, 1998). Relational victimization has been found to be related to a range of adjustment problems in children and adolescents (Crick & Bighee, 1998). Children who are victimized frequently lack coping and communication skills to handle provocations assertively. Their behavior frequently reinforces their tormenters and invites future attacks. Roles of victim and bully are frequently interchangeable, with bully often serving as a stimu-

lus for retaliatory aggression (Twemlow, Sacco, Frank, & Williams, 1996). While post-hoc analysis often suggests that victimization by peers was a factor in motivation for a violent assault, it must be remembered that not all children victimized by peers become violent. Aggressive and antisocial youth may display hypervigilance for negative social cues and may tend to perceive hostile intent in situations that may be interpreted as benign or neutral by others.

In a nationwide investigation of school associated violent deaths conducted through the U.S. Department of Education, some common motivational themes were identified among young assailants (Kachur et al., 1996). Most frequently cited motives for lethal assaults in the study were interpersonal disputes unrelated to a romantic relationship or personal property (33.3%), gang-related activities (31.4%), random victim events in which the person killed was not a party to an initial altercation (18.1%), suicides (18.1%), and disputes over romantic relationships (11.4%). In a 1997 study of juvenile offenders and their victims, the Office of Juvenile Justice and Delinquency Prevention found that two of the most commonly cited motives for carrying weapons to school are protection and respect. Among juveniles who have carried weapons to school, 18% agreed that "It is okay to shoot someone who disrespected you" (Office of Juvenile Justice and Delinquency Prevention, 1997).

Interactional Models

There is wide agreement that juvenile violence is the product of a combination of individual factors and social contexts (National School Safety Center, 1999b). Different models have been proposed for understanding how these factors combine and contribute to violence. Garbarino (1999b) has proposed that it is the accumulation of risk factors that is important in understanding youth violence. He believes that it is useless to attempt to find a single cause for youth violence because it is the buildup of negative experiences and influences that accounts for the behavior. Saner and Ellickson (1996) present a similar view. In summarizing findings from their research examining risk and protective factors for different types of violent behavior in a sample of high school students, they conclude that as the number of risk factors increases, so does the likelihood of engaging in violent behavior for both girls and boys. While accumulation of risk factors does appear to be important, other researchers have stressed that models which emphasize the accumulation of risk factors may miss important developmental and interactional aspects of different factors, which may be important in design of screening, prevention, and intervention efforts (Pepler & Slaby, 1994).

Interactional models emphasize importance of the interplay of individual factors with a complex mix of familial, school, peer, and other ecological factors in producing aggressive and violent behavior patterns in childhood and adolescence (Patterson et al., 1989; Pepler & Slaby, 1994). The transactional-ecological model assumes that disturbances in behavior cannot be viewed as resting only within the individual (Bronfenbrenner, 1979; Patterson et al., 1992). A child develops as a function of particular individual characteristics (e.g., gender, temperament, social skills, biological factors), the nature of the context in which he or she resides (family, peers, school, society), and the processes or interactions that account for developmental change (Webber, 1997). Bronfenbrenner (1979) stated that individual development results from the process by which "properties of the person and the environment interact to produce constancy and change in the characteristics of the person" (p. 191). As a result of these interactions, aspects of the environment are also subject to change. For example, a

child's aggressive behavior may negatively impact the parental relationship, and the resulting conflict between parents contributes to deterioration in the child's behavior, which then leads to a school suspension.

Developmental Pathways

There seems to be a developmental progression from minor delinquent acts to more serious ones, with serious interpersonal violent acts being the final set of behaviors in this sequence (Elliott, 1994). Loeber and Farrington (1998) describe five characteristics of a developmental progression in problem behaviors. First, some behaviors have an earlier onset than others. Second, there is usually escalation in seriousness of the acts over time. Third, early behaviors are usually retained as new ones are added. Fourth, each behavior is best predicted by the developmentally adjacent behaviors. Fifth, the ordering of behaviors in a pathway is invariant.

Developmental sequences in boys' antisocial behaviors may involve different pathways (Pepler & Slaby, 1994). A pathway is defined as a group of individuals who share a pattern of behavioral development that is distinct from the behavioral development of another group of individuals (Howell, 1997). Loeber and Stouthamer-Loeber (1998) proposed a triple pathway model of the development of antisocial and violent behavior. The three pathways are described as the overt pathway, the early authority conflict pathway, and the covert pathway. Boys on an overt pathway to violence typically follow a developmental sequence of escalating behaviors from aggression (annoying or bullying others at ages 8 to 13 years) to fighting (with individuals or groups at ages 12 to 14 years) and eventually to violence (e.g., attacking someone at ages 12 to 14 years). It appears that boys rarely enter this pathway to violence from other disruptive behavior pathways, although they may broaden the range of their disruptive behaviors into other pathways. The early authority conflict pathway is described as a sequence of stubborn behavior, defiance, and authority avoidance. The covert pathway appears to involve a sequence of minor covert behavior, property damage, moderate forms of delinquency, and more serious forms, such as fraud, burglary, and serious theft. Findings to date suggest that boys in initial steps of a pathway are at less serious risk of persistence than are those at later steps.

While progression of behaviors within an overt pathway appears to be orderly, not all boys who start out on this pathway will continue with escalation to violence. Huesman, Eron, Leflowitz, and Walder (1994) analyzed a longitudinal data set and found that 23% of highly aggressive boys continue along an overt pathway to serious criminal offenses. Osborn and West (1978) found that 36.1% of boys rated as exceptionally troublesome and aggressive became persistent recidivists later in their teens and into adulthood. It appears that boys who follow the chronic trajectory of overt or aggressive behavior are most at risk for serious school violence. Why some boys remain on a chronic trajectory and others desist has been attributed to the presence of various risk factors at different ages. In their synthesis of longitudinal research on the predictors of serious delinquency, Lipsey and Derzon (1998) ranked different groups of predictors by importance for children ages 6 to 11 years and 12 to 14 years. Their findings and the associated correlations are listed in Table 2. It appears from their results that the constellation of risk factors that are most likely to result in continuance along a pathway to more serious delinquency and violence changes over time. A developmental perspective is thus important for both risk assessment and prevention efforts.

TABLE 2. Ranking of Age 6–11 and Age 12–14 Predictors of Violence and Serious Delinquency at Age 15–20

Age 6–11 Predictors	(<i>r</i>)	Age 12–14 Predictors	(<i>r</i>)
Rank 1 group			
General offenses	(.38)	Social ties	(.39)
Substance use	(.30)	Antisocial peer	(.37)
Rank 2 group			
Male gender	(.26)	General offenses	(.26)
Family SES	(.24)		
Antisocial parents	(.20)		
Rank 3 group			
Aggression	(.21)	Aggression	(.19)
Ethnicity	(.20)	School attitude/performance	(.19)
Psychological condition	(.19)		
Parent–child relations	(.19)		
Male gender	(.19)		
Physical violence	(.18)		
Rank 4 group			
Psychological condition	(.15)	Antisocial parents	(.16)
Parent–child relationships	(.15)	Person crimes	(.14)
Social ties	(.15)	Disruptive behavior	(.12)
Disruptive behavior	(.13)		
School attitude/performance	(.13)		
Medical/physical problems	(.13)		
Other family factors	(.12)		
Rank 5 group			
Broken home	(.09)	Broken home	(.10)
Abusive parents	(.07)	Family SES	(.10)
Antisocial peers	(.04)	Abusive parents	(.09)
Other family factors	(.08)		
Substance use	(.06)		
Ethnicity	(.04)		

Note. *r* figures represent weighted averages from a meta-analysis in “Predictors of Violent or Serious Delinquency in Adolescence and Early Adulthood: A Synthesis of Longitudinal Research” by M. W. Lipsey and J. H. Derzon (1998), in R. Loeber and D. P. Farrington (Eds.), *Serious and Violent Juvenile Offenders*. Thousand Oaks, CA: Sage Publications. Copyright 1998 by Sage Publications.

SES = socioeconomic status.

Protective Factors

Not all children exposed to multiple risk factors begin a progression toward violence, and not all of those who begin on such a pathway continue. Protective factors may help to explain why some children with comparable levels of risk factors and early stage behaviors seem to get worse, while others do not. While risk factors operate directly, protective factors are thought to operate indirectly through interaction with risk factors, mediating and moderating their effects (Catalano & Hawkins, 1999).

Three classes of protective factors have been identified: factors inherent in the individual, factors related to the development of social bonding, and healthy beliefs and

clear standards for behavior (Howell, 1997). Individual protective factors for boys include high intelligence, a positive social orientation, and a resilient temperament (Rutter, 1985). Social bonding factors include warm, supportive affective relationships or attachments with family members or other adults (Garmezy, 1985). It also includes development of commitment to prosocial values and institutions such as family, school, or religious organizations. Bonding to individuals who exhibit prosocial behaviors has been found to increase the likelihood of learning nonviolent behaviors, and to decrease the incidence of drug use, and the likelihood of becoming violent or committing crimes (Howell, 1997).

Smith and Thornberry (1995) identified 12 school, family, peer, and individual factors that appear to buffer the effects of risk factors. Their study included youth with five or more risk factors for serious violence who did not become violent or serious delinquents. They found that the most important factors for delinquency prevention were school factors (achievement and commitment), followed by family (supervision and bonding) and peer factors (association with prosocial peers).

RISK ASSESSMENT FOR VIOLENCE

Methods

Prediction of dangerousness or risk for violence is a complex and controversial issue in psychology, criminology, and law (Grisso & Appelbaum, 1992). Screening in the form of identification of potential violent offenders and classification of known offenders has potential value for society in prevention of crime and identification of those in need of mental health and social services (Elliott, 1994). In practice, risk assessment also presents a number of methodological and ethical dilemmas.

There are currently no validated screening instruments or protocols for use with children and adolescents, yet violence in this population is a pressing social problem (Johnson, 1999). Several research and public interest groups have suggested guidelines and collections of "warning signs" for youth violence, yet these have not been formally evaluated. Currently, clinicians must rely on the literature on risk assessment for adults and the available data on risk factors for youth. The purpose of this section is to explore problems and limitations inherent in risk assessment for violence, to review systems that have been developed for adults, to provide an overview of important considerations in risk assessment with children, and to provide examples of methods that may hold some promise in risk assessment for school violence.

Sources of error in prediction of violence include error in selecting the appropriate criteria for assessment, identifying the relevant variables, assessing the variables reliably, and determining the interaction of these variables or the relative response potential of dangerous and nondangerous acts. In addition, violence among youth is a low base-rate problem. In criminology, it is expected to be about 6% in the general population, 20% of juvenile arrestees, and 45% of the population of adjudicated boys (Le Blanc, 1998). The lower the base rate, the easier it is to predict that everybody in the sample will not be a violent juvenile offender. This prediction will be correct 94% of the time. In predicting dangerous behavior, there are two types of possible errors: false positives are those individuals for whom we erroneously predict will engage in violence, whereas false negatives are those for whom we erroneously predict will not engage in dangerous behavior. While the public has greater concerns about false nega-

tives who may be ignored and later commit an assault, the false positives are likely to be far more numerous.

Costs of false positives may include stigmatization, self-fulfilling prophecies, misuse of social services, and loss of individual freedom and privacy. These costs must be weighed against costs to potential victims in the absence of an attempt at risk assessment, and efforts must be made to minimize the negative consequences for those identified as "at risk" (Magargee, 1976). The decision about whether to institute a program of risk assessment thus becomes a public policy decision. With the level of concern generated by school shooting incidents, the decision to pursue assessment and screening with youth is being made by school boards and by law makers. The task is being assigned, which leaves the mental health professional with concerns about types or error and the consequences.

With so many sources of possible error, many have questioned whether mental health professionals should be attempting to predict dangerousness. In 1984, John Monahan reviewed the research relevant to the ability of mental health professionals to predict violence. He concluded that the best clinical research at the time indicated that psychologists were accurate in no more than one out of three predictions of violence (Monahan, 1984). He pointed out several shortcomings of early research, including inadequate predictor variables, poorly defined and inadequate criterion measures, constricted samples, and poorly organized research efforts (Otto, 1992).

A second generation of research in risk assessment has addressed many of these concerns, and the results are more encouraging. Most recent studies suggest that mental health professionals have at least a modest ability to predict violence and that their predictions are significantly more accurate than chance (Borum, 1996; Mossman, 1994; Otto, 1992). In a comprehensive review of this second-generation research, Otto (1992) concluded that "changing conceptions of dangerousness and advances in predictive techniques suggest that rather than one in three predictions of long-term dangerousness being accurate, at least one in two short-term predictions are accurate" (p. 129); however, he also cautioned that "even under the best of circumstances, mental health professionals will still make a considerable number of incorrect predictions, with false positives being the most common type of error" (p. 128).

Use of traditional psychological assessment techniques has not proven helpful in identifying young violent offenders. Katz and Marquette (1996) tested the hypothesis that young men incarcerated for murder would show more anger, hostility, paranoid ideation, and increased levels of global psychopathy than nonviolent offenders and normal high school students on the Minnesota Multiphasic Personality Inventory-Adolescent Version (MMPI-A; Butcher, Williams, Graham, Archer, Kelligan, Ben-Porath, & Kaemmer, 1992) and the State-Trait Anger Scale (Spielberger, Jacob, Russel, & Crane, 1983). This hypothesis was not supported. No evidence of increased anger, paranoid features, or global psychopathy was found. Minarik, Myatt, and Mitrushima (1997) examined MMPI-A profiles of inpatient adolescents to identify differences between suicidal and violent adolescents. They found evidence of psychotic process in suicidal, but not violent, adolescents.

Several risk assessment instruments have been developed for adults. The Dangerous Behavior Rating Scheme (DBRS; Menzies & Webster, 1995) was one of the first attempts to develop an instrument with psychometric properties that could be used in clinical assessment of dangerousness. The most recent version uses a 7-point Likert scale consisting of items covering such factors as anger, rage, capacity for empathy, capacity for change, environmental support tolerance, and guilt. Validation studies of

this semistructured instrument could account for only about 12% of the follow-up dangerous behavior in forensic patients (Borum, 1996).

The Violence Risk Assessment Guide (VRAG; Queney, Harris, Rice, & Cormier (1998) combines clinical and actuarial factors in a 12-item instrument that was empirically derived from information gathered in record reviews of 618 forensic patients in a maximum-security facility. The areas assessed by this instrument include psychopathy, separation from parents prior to age 16, previous violence, schizophrenia, elementary school maladjustment, property offense history, alcohol abuse history, and personality disorder. With an average follow-up period of 81 months, the VRAG had a classification accuracy of approximately 75%. This instrument was developed using a sample of individuals with histories of serious violence, and generalization to other samples has not been established.

The HCR-20 Violence Risk Assessment Scheme (HCR-20) (Webster & Polvi, 1995) was designed for use in assessment of risk for future violent behavior in criminal and psychiatric adult populations. The first section includes 10 historical items, including such factors as previous violence, mental illness, substance use, personality disorder, early maladjustment, and relationship and employment problems. The next five items comprise a clinical scale, and include status and personality variables of the individual including lack of insight, negative attitudes, impulsivity, active symptoms of mental illness, and unresponsiveness to treatment. The remaining items pertain to future risk, and included feasibility of plans for violence, exposure to destabilizers, lack of personal support, noncompliance with remediation attempts, and stress. This instrument is awaiting validation for use with adults. Preliminary data, although limited, appear promising (Douglas & Webster, 1999).

The Spousal Assault Risk Assessment Guide (SARA) is a 20-item clinical checklist of risk factors for spousal assault (Kropp, Hart, Webster, & Eaves, 1994). It contains items assessing criminal history, psychological adjustment, spousal assault history, and items relating to a current alleged offense. It is designed to be used as a clinical guide to assessing a very narrowly defined population. Preliminary data suggest that it may be a useful instrument in identifying those at risk for reoffending.

Unfortunately, none of the above instruments are designed for or studied with juveniles or individuals without a history of violence or criminal behavior. In the absence of any validated tools for risk assessment for juveniles, several groups have attempted to assemble lists of risk factors or warning signs for violence. Most of these have been developed recently in response to public concern about school safety. Many of these checklists have good face validity; however, they are untested.

The National School Safety Center (1999a), Dwyer, Osher, Warger, and Bear (1998), and the American Psychological Association (1999) have all published lists of warning signs for youth violence during the past year. In addition, the FBI has developed a profile of school assailants based upon incidents prior to 1998. All of the checklists use a profiling approach based upon demographic, descriptive, historical, and psychological "profiles." They are essentially collections of risk factors believed to be common to youth that exhibit violent behavior. With the exception of the FBI profile, they are not specific to particular types of violence even though it is recognized that different types of violence may have different predictors (Campbell, 1995; Borum, Fein, Vossekuil, & Berglund, in press). Little is known about the predictors for specific types of violence, and it is unclear how and to what extent the data from more generic risk assessments may generalize to risk for lethal school assaults. It is also not clear how such risk factor checklists should be applied. There is no basis for suggesting cut-off scores in classifying an individual as dangerous or nondangerous.

In the Guide to Safe Schools produced by the Department of Education and the National Association of School Psychologists, Dwyer et al. (1998) suggest 16 “warning signs” for violent behavior by children and adolescents, and 8 “imminent warning signs” that a student is close to behaving in a way that is potentially dangerous. They have based their list of warning signs on their review of research on youth aggression and violence. The American Psychological Association (1999) has also used a review of the research on youth violence and aggression as a basis for a published a list of 22 early warning signs to assist teens and their parents in identifying youth at risk for violence. The National School Safety Center (1999a) has constructed a checklist of 22 characteristics common to youngsters who have caused school-associated deaths since 1992. They suggest that this checklist be used to alert school staff to address the needs of troubled youth and make appropriate community referrals. The FBI (1998) constructed a set of characteristics of youngsters who have committed multiple victim assaults through 1998. They are attempting to construct a cumulative offender profile in order to assist law enforcement personnel in more effective approaches to investigation and prevention. These checklists and profile characteristics are listed in Table 3. The items have been arranged into categories of individual, peer/school, family, and situational factors to facilitate comparison.

Absence of a particular risk factor on one of these checklists does not indicate that the authors believed that it was unimportant, but rather that it did not fit the purposes of their screening instrument. Family factors are frequently not included in these checklists, which may be due to the fact they are often not observable to persons outside of the child’s family and would therefore not be useful “warning signs” to others who interact with that child.

Checklists published by the American Psychological Association and the National Association of School Psychologists are designed to serve as sets of “warning signs” that a child or adolescent may be at risk for any type of violent behavior. Lists compiled by the National School Safety Center and the FBI are specific to violent school assaults and were derived from case studies. The set of characteristics compiled by the FBI is the only list that was derived strictly from study of multi-victim school assaults that are the focus of this paper. Six cases were utilized in constructing this list. Characteristics identified as commonalities may also apply to many young people who are never violent, and some may appear on this list by chance. Contributors stress that it is impossible to predict violent behavior from a set of characteristics, particularly with such a small number of cases (Harpold & Band, 1998). They stress that these characteristics may signal the potential for violence, but do not predict actualization of this potential.

Some differences in contents of these collections of risk factors are apparent. Low school achievement and low commitment to school is identified as a risk factor in both checklists, which are designed to be applicable to a broad range of violent behavior, but is not included in the lists specific to school assaults. In studying actual incidents, this has not been found to be characteristic of school assailants (Harpold & Band, 1998; National School Safety Center, 1999a). A history of school discipline problems, bringing a weapon to school on a previous occasion, and being a victim of abuse or neglect have been identified as risk factors for violence in general and for school violence as a broad category of behaviors, but not for the multiple victim lethal assaults. There are five characteristics that appear on the FBI’s list that do not appear on the other lists. These are: a stressful event or loss of status (i.e., a failed romance or school disciplinary action), troubled family relationships, a lack or perceived lack of family support, history of previous mental health treatment, and poor grooming or a sloppy and “unkempt” appearance. With the exception of school failure, all of the risk fac-

TABLE 3. Risk Assessment Checklists/Characteristics of School Assailants

Factor	NASP	APA	NSSC	FBI
Individual				
Uncontrolled anger	✓	✓	✓	✓
Substance abuse ^a	✓		✓	✓
Depression			✓	✓
Suicidal threats	✓		✓	✓
Previous mental health treatment ^a				✓
Poor grooming				✓
Blames others for problems			✓	✓
History of aggression ^a	✓	✓	✓	✓
History of discipline problems ^a	✓	✓	✓	✓
Violent writings or drawings	✓	✓	✓	✓
Threatens violence	✓	✓	✓	✓
Impulsivity ^a	✓	✓	✓	✓
Cruelty to animals			✓	✓
Has a detailed plan	✓	✓		✓
Has brought weapon to school	✓		✓	✓
Family				
Victim of abuse or neglect ^a		✓	✓	
Lack of supervision ^a			✓	✓
Troubled family relationships ^a				✓
Lack of/perceived lack of family support				✓
School/Peer				
Socially isolated	✓	✓	✓	✓
Feels rejected by peers	✓	✓		✓
Poor coping and social skills			✓	✓
Feels picked on, persecuted	✓	✓	✓	✓
Intolerance/prejudicial attitudes	✓	✓		✓
Antisocial peer group ^a	✓		✓	✓
Low school commitment/achievement ^a	✓	✓		
Societal/Environmental				
Access to firearms	✓	✓	✓	✓
Preoccupation with violent media/music			✓	✓
Fascination with weapons and explosives		✓	✓	✓
Situational				
Stressful event/loss of status				✓
Sudden decline in functioning		✓		✓

Note. NASP: National Association of School Psychologists, *Early Warning, Timely Response* (1999); APA: American Psychological Association, *Warning Signs* (1999); NSSC: National School Safety Center, *Checklist of Characteristics of Youth Who Have Caused School-Related Violent Deaths* (1999); FBI: Federal Bureau of Investigation, *Lessons Learned: An FBI Perspective*. School Violence Summit (1999).

^aItems identified in meta-analysis of risk factors by M. W. Lipsey and J. H. Derzon (1998), in R. Loeber and D. P. Farrington (Eds.), *Serious and Violent Juvenile Offenders*. Thousand Oaks, CA: Sage Publications.

tors for violence in general are included in the lists of characteristics of youth involved in school violence; however, a third of the items identified as characteristics of school assailants do not appear as risk factors for the general category of youth violence. It appears that there are several characteristics of youth that commit violent assaults in

school that may be specific to this group, and that these events may be best studied and understood as a discrete subcategory of violent acts.

Other Methods

With paucity of empirical data on specific risk factors that are most relevant to school assaults and lack of guidance on decision points or cut-off scores in assessment of risk, clinicians are advised to utilize multiple sources of information in the screening process. Clinical interviews with subjects, interviews with parents, teachers, and friends, and examination of school, police, and medical records are recommended as sources of collateral information in the data collection process (Johnson, 1999; Le Blanc, 1998). Obtaining reliable information regarding past behavior is of primary importance, and acquiring this information from interviews with subjects can be difficult.

Eddy and Harris (1998) developed an interview format for use in risk assessment with forensic patients. It combines information from behavioral observations of interview behavior, a mental status examination, along with questions about the following topics:

1. Recent (past 6 months) history of violence toward self or others, threats, or arrests.
2. Past history of violence toward self or others, threats of violence, or arrests.
3. Family history of violence.
4. Current violent ideation.
5. Substance abuse.
6. Medical condition, medications taken.
7. Access to and experience with weapons.
8. Social/environmental factors.
9. Previous intervention and response.

These suggestions are general topics. In order to gain the most useful insights from such a format, clinicians would need to become knowledgeable about specific behaviors and attitudes relevant to a subject's reference group and the category of offenses of interest (Borum, 1996). The unique contributions of this interview appear to be the use of behavioral observations, the mental status examination, questions about current violent ideation, and previous intervention and response.

As with risk assessment checklists, this interview format is a way of gathering descriptive, demographic, and psychological profiles to aid in discriminating the type of person most likely to commit a violent offense. This approach has been an effective strategy in law enforcement for limiting the field of suspects after a crime has occurred; however, it may not be as useful for identifying individuals who are at greater or lesser degrees of risk for targeted violence (Borum et al., in press). Given the relative infrequency of events such as school homicides, the vast majority of people who "fit" any given profile will not engage in that behavior.

Profiling models of risk assessment are based upon a view of dangerousness as dispositional (residing within the individual), static, and dichotomous (either present or not present). In contrast, threat assessment involves a view of dangerousness or "risk" as a construct that is contextual (highly dependent on situations and circumstances), dynamic (subject to change), and continuous (varying along a continuum of probability) (Fein & Vossekuil, 1999). Instead of looking at demographic and psychological characteristics, the threat assessment approach focuses on an individual's thinking

and behaviors as a means to assess his or her progress on a pathway to violent action (Borum et al., in press). This approach has been developed and used extensively by the United States Secret Service in its efforts to investigate and prevent targeted violence against domestic and foreign leaders. It is currently being applied to research on multiple-victim school homicides (R. Fein, personal communication, July 19, 1999).

There are three fundamental principles underlying the threat assessment approach (Fein & Vossekuil, 1999). The first principle is that targeted violence is the result of an understandable and often discernible process of thinking and behavior. Ideas about an attack usually develop over a considerable period of time, and targeted violence generally involves planning around a series of critical factors including target selection, approach time and setting, and means for violence. The attacker often communicates ideas about his plans to others. For some of these individuals the process of planning and thinking about the attack dominates their lives and provides a sense of purpose or an attainable goal by which they see an end to their emotional pain (Borum et al., in press). The second principle is that violence stems from an interaction among the potential attacker, past stressful events, a current situation, and the target(s). An assessment of an individual of interest may consider relevant risk factors, development and evolution of ideas concerning an attack, preparatory behaviors, and an appraisal of how the individual has dealt with acute stress in the past. When usual coping mechanisms are ineffective, people may react by becoming physically ill, psychotic, self-destructive, or violent toward others. An assessment of a person's history of response to major changes or losses (i.e., loss of a parent or intimate relationship, public humiliation, failure, or rejection), and the types of events that have led the individual to experience severe stress may help in determining the salience of risk. In addition to assessing a potential attacker and past stressful events, the current situation and the target are appraised. How others are responding to subject's perceived stress and potential risk (i.e., supporting or ignoring) has been found to be important (Borum et al., in press). The third principle is that a key to threat assessment is identification of a subject's "attack-related" behaviors. Those who engage in targeted violence often engage in discrete behaviors that precede and are linked to their attacks, including thinking, planning and logistical preparations. Attack-related behaviors tend to move along a continuum beginning with the development of an idea, communication of the idea, and approaching the target or scene of the attack, often with the lethal means. Learning about these behaviors may be critical to assessment of risk.

It is recommended that information for a threat assessment be gathered from multiple sources including personal interviews with the subject, material created or possessed by the subject, collateral interviews with others that are involved with the subject, and archival information. Information is gathered in five areas: facts about what has brought the subject to attention for assessment, the subject, attack-related behaviors, motive(s), and target selection (Fein & Vossekuil, 1999). Understanding motive may be useful in identifying a potential target and the degree of risk. Major motives of targeted violence include achieving notoriety or fame, to avenge a perceived wrong or retaliate for a perceived injury, to bring attention to a personal or public problem, and to end personal pain by being removed from society or killed (Fein & Vossekuil, 1999). It must be noted that judgments about motives and risk in general are time-limited. Motives, circumstances, and interests shift over time.

The U.S. Secret Service has identified 10 key questions to guide threat assessment based upon their experience and assassination research. These questions flow from the principles outlined above (Fein & Vossekuil, 1999).

1. What motivated the subject to make statements or take the action that brought him or her to attention?
2. What has the subject communicated to anyone concerning his or her intentions?
3. Has the subject shown an interest in targeted violence, perpetrators of targeted violence, weapons, extremist groups, or murder?
4. Has the subject engaged in attack-related behavior, including any menacing, harassing, or stalking?
5. Does the subject have a history of mental illness including hallucinations, delusions, or feelings of persecution? Has he or she acted on these in the past?
6. Is the subject organized and capable of developing and carrying out a plan?
7. Has the subject experienced a recent material or relational loss or a loss of status leading to desperation and despair?
8. What is the subject saying, and is it consistent with his or her actions?
9. Is there concern among those who know the subject that he or she may take action based on inappropriate idea?
10. What factors in the subject's life and environment i.e., supervision/opportunity, conflicting goals, significant relationships might increase/decrease the likelihood of the subject attempting to attack a target?

These questions provide a framework for thinking about assessment for targeted violence. It is not yet known if this model will prove useful in assessment of risk for school homicides, however this possibility is currently being studied. Examination of behavioral patterns leading up to a violent act and of motives and circumstances may be a useful way of augmenting other risk assessment protocols. There is some overlap in the individual and social factors identified in this system with those in the checklists and interview format described earlier; however, emphasis on the development of ideas and behaviors related to an attack is an unique contribution of this approach.

In summary, three methods of risk assessment described in the literature are the use of checklists for "profiling" potential assailants, interview formats, and the threat assessment approach. Each of these methods seems to offer some unique contributions. There are no data at this point to assist a clinician in selecting the "best" strategy for risk assessment for violent school assaults, and these crimes do appear to have some features which distinguish them from other types of violence.

AN EXAMINATION OF RECENT CASES

Rationale for Case Selection

Nine cases of multiple victim violent assaults in schools have been selected for review. All of these have occurred during the past 3 school years and have involved use of firearms. These are the cases that have been labeled "school shootings" by the press and have prompted many policy changes to improve school safety. While there have been other cases of school homicides around the nation, these have had no apparent secondary gains for the assailants have not involved gang activity and have not occurred in the context of other criminal activity. They have been deliberate and carefully planned attacks.

There have been numerous "near misses" nationally involving students who have been found in possession of lethal weapons and explosives at school with intent to kill or injure others, but have been discovered before they were able to act on their inten-

tions. These cases would also be relevant to the purposes of this paper. Unfortunately, information on these latter cases is not as readily available. While death and injury are written about extensively and investigated by researchers and the media, information on "near misses" is less accessible.

Methods

Obtaining information on juvenile crime presents some special considerations. Out of these nine cases, convictions have been obtained in four. The other five are scheduled for trial and hearings during the next 12 months. Of the four where convictions have been obtained, the records were sealed in two cases due to the young ages of the juveniles involved (ages 11 and 13) and civil suits that are pending. In those cases where the accused assailants have not been tried, there are no available court records or documents. Sources close to the crimes are not yet able to disclose pertinent information. For the two cases where convictions have been obtained and records have not been sealed, information was obtained directly from the courts in the form of interviews with court officials, videotapes of hearings and portions of the trial, and court documents. This information is available to the public through the court systems.

For the cases that have not yet been adjudicated, information was obtained through a search of local and national media. A search through the Lexis Nexis law and public records database was also conducted. While it is recognized that the potential for distortion and omission of important information exists in media accounts, they are the most complete and available sources of information available at this time. Attempts were made to verify facts about these cases through contacts local investigators, school personnel, and other researchers when possible.

Due to the limitations outlined above, some of the information that pertains to assessment of risk in these cases was unavailable. Absence of a risk factor from a case description does not necessarily mean that it did not apply. There may be information available about these cases at a later point in time that will provide the opportunity for more thorough case studies. While the available data on these cases is limited, issues surrounding risk assessment that have arisen in their wake are pressing. It is hoped that this review of available case information will offer some preliminary insights regarding the characteristics of youth involved in the multiple victim assaults which can be used in decision making about the risk assessment process.

INDIVIDUAL CASES

Moses Lake, Washington

On February 2, 1996, 14 year-old Barry Loukaitis walked into his algebra class at Frontier Middle School and shot his teacher and two students, killing all three. After shooting three people and seriously wounding another, he held his class hostage for 15 minutes while his classmates pleaded with him to allow medical help to reach those critically wounded (Fitten & Santana, 1997, September 27).

Individual factors. It was reported at Barry Loukaitis' trial that he did not have an early history of violence or aggression and had no known pattern of substance abuse (Courtroom Television Network, 1997). Barry reportedly experienced some school phobia at age 5; however, he was described as "adjusted" in first through fifth grades.

Barry's family moved to a new community when he was in fifth grade, just prior to his entering junior high school. At that point he began to withdraw socially. He developed an interest in violent music and books about murder. He wrote poetry about the act of revenge killing and read these poems aloud in his classes. Over the next 2 years, Barry became increasingly withdrawn and developed some additional psychiatric symptoms. Two to three months prior to the assault, he began pacing and taking several showers each day. He would occasionally fall asleep in the shower. Psychiatrists for the defense testified at trial that Barry suffered from a bipolar disorder; however, he had not previously been referred for mental treatment (Wold, 1997, August 25).

Family factors. According to information presented at his trial, Barry's family life was characterized by ongoing financial stress and parental conflict. After the family moved during Barry's fifth grade year, his parents began having frequent loud arguments in front of him, which involved shouting, cursing, and fist-fighting (Fitten & Santana, 1997, September 27). His parents separated, and Barry's unsupervised time increased. Approximately a month before the assault, Barry's mother filed for divorce. She told the court that she had told her son in detail about a plan to confront her husband and lover, tie them up and force them to listen to how much pain they had caused her, and then kill herself in front of them. Barry reportedly attempted to talk his mother out of this plan, and became increasingly sad and withdrawn in the days that followed.

School and peer factors. Barry became increasingly withdrawn and isolated socially in the months before the assault. According to media accounts, he was small in stature compared with his peers, and was frequently teased about this and bullied at school. He expressed feelings of being picked on and persecuted. He began making verbal threats and comments to peers about killing a ninth grade boy who had teased him.

Societal and environmental factors. Barry had been exposed to weapons in the home from an early age. He brought a revolver, a pistol, and a handgun with him on the day of the shooting. All of these weapons belonged to his parents and were kept at home. Barry talked with friends about how to acquire ammunition, and about wanting to kill somebody before he died (Fitten & Santana, 1997, September 27). He later reported that he had become fascinated with the idea of a classroom killing after reading a Stephen King novel about a teenager who holds his algebra class hostage and kills his teacher. Seven times he rented the movie "Natural Born Killers," which depicts a spree of random killings. He commented to a friend that it would be "cool to go around the country killing people" like the characters in the movie (Alexander, 1997).

Situational factors and attack-related behaviors. Barry was described as experiencing acute stress following his mother's threat of suicide. He had also been humiliated by an episode of name-calling at school. His behavior deteriorated in the weeks before the assault. He talked in front of peers about his desire to kill those who harassed him. He asked them what they would think of him. He assembled a collection of weapons and bought an outfit to camouflage them at school. He was, by all reports, intelligent, well-organized, and prepared. He felt persecuted by peers and perceived a lack of support from family members preoccupied with marital conflict (Courtroom Television Network, 1977).

Bethel, Alaska

On February 18, 1997, 16-year-old Evan Ramsey walked into his high school a few minutes before classes were scheduled to begin and opened fire on classmates and staff. The school principal and one student were killed, and two others were wounded (Shinohara, 1997, September 21).

Individual factors. According to his teachers and peers, Evan had a history of uncontrollable anger (Shinohara, 1997, September 21). His peers later reported that Evan “would just blow his top and go off. His mind would shut off and he wouldn’t listen to anybody” (Toomey, 1998a, January 24). He had thrown trashcans and pushed adults at school in a fit of rage and punched a hole in the wall of his foster home. He had a history of using marijuana (Mosley, 1999) and had been previously diagnosed as depressed by a counselor in the state foster care system (Toomey, 1998b, January 30), but no mental health services were provided. Evan had attempted suicide at age 10 and had talked about it periodically throughout his adolescence. He left a suicide note before leaving for school on the day of the shooting (Fainaru, 1998, November 8). Evan was described as an unkempt boy who wore winter hats in the summer and was labeled by his peers as a boy with a temper problem. He had been involved in frequent fights at school with multiple suspensions (Shinohara, 1997, September 21). He was known to threaten others and throw rocks at dogs for amusement (Fainaru, 1998, November 8).

Family factors. Evan lived with his parents and two brothers until he was 7. At that time, his father went to prison following a conviction for a violent assault. His mother subsequently developed severe problems with alcohol abuse and had a series of violent domestic partners. The boys fled their apartment to escape injury one winter evening and were found by a local school official sleeping in the entryway of a home. The boys were separated and placed in foster care. Evan resided in a series of foster placements during adolescence (Toomey, 1998c, February 22). In one of these placements, the psychiatrist hired by the defense team reported that Evan was humiliated and abused. In his placement at the time of the shooting incident, he was reportedly often left without supervision (Toomey, 1998b, January 30). Evan lacked family support, healthy attachments, and supervision.

School and peer factors. Evan was described as an outsider who did not fit in with the athletes and popular students at school. A friend of Evan’s reported at trial that Evan was often teased and taunted by fellow students as “brain-dead,” “spaz,” and “retarded.” Evan felt picked on and persecuted (Mosley, 1999). He was known to use racial slurs in insulting other students, including the boy he later killed (Toomey, 1998b, January 30). Evan had a small circle of friends who shared his antisocial attitudes and encouraged his behavior. Two of his friends reportedly participated in the planning and preparation of the attack. These two friends were later arrested, tried, and convicted as accomplices (R. Erb, special prosecutor, Dillingham County, personal communication, July 7, 1999). Evan was reportedly angry with teachers and administrators because of the disciplinary problems and consequences he had experienced (Fainaru, 1998, November 8).

Societal and environmental factors. Evan was accustomed to the presence of guns in his home. The weapon he used in the shooting was a 12-gauge shotgun that hung unlocked by the front door of his foster home (Fainaru, 1998, November 8). Evan and

his friends reportedly spent several hours each day playing the violent video game "Doom," which was also a consuming interest for other school assailants. He had fantasized with his friends about killing various people in his life (Fainaru, 1998, November 8).

Situational factors and attack-related behaviors. Evan had experienced a number of stressful events just prior to the attack. His father had recently been released from prison and his status in Evan's life was not clear. Evan's girlfriend had broken up with him. The dean of students had taken away his portable compact disc player as a disciplinary measure, which had angered him greatly. He had announced to his friends that he planned to bring a gun to school and spread rumors that "something really big" was going to happen in the school lobby that morning. He identified his intended victims to his friends. A large number of peers had assembled as bystanders. None of the teenagers warned an adult. He purchased special clothing to hide his weapon, and told his friends and other acquaintances to arrange to be on the second floor balcony that morning to watch his actions. Evan reported later that he had been told by his friends that he would be famous after the shooting. After the conviction, he lamented: "In a few months, nobody will remember me. Other people will commit other offenses and I'll be considered yesterday's news" (Mosley, 1999).

Pearl, Mississippi

On October 1, 1997, 16-year-old Luke Woodham arrived at his high school with a rifle hidden under his trench coat. He opened fire on his former girlfriend and other students in a hallway, killing two and wounding seven others. Prior to coming to school that day, he had killed his mother by beating her and stabbing her with a butcher knife.

Individual factors. Luke Woodham was described as a very angry young man; however, he did not display a high frequency of physical aggression. He had been a target of teasing by peers, but was not known to fight back. His anger was expressed verbally in the form of threats and fantasies about killing, which he shared with his small group of friends (Holland, 1997). According to news reports (Bisall, 1997, October 2), he handed a classmate a note less than a minute before he began shooting his classmates which read, in part: "I am not insane. I am angry. The world has (expletive) on me for the final time . . . Murder is gutsy and daring and I killed because people like me are mistreated everyday. I do this to show society that if they pushed us, we will push back."

Luke was described as an overweight boy with thick glasses, a disheveled appearance, and few social skills (Morello, 1997, October 22). Psychiatric testimony at Luke's trial and his own self-reports indicate that he suffered from a depressed mood prior to his attack. Testifying on his own behalf at trial, Luke described feeling devastated after his girlfriend broke up with him a year before the shootings and reported that he "didn't eat or sleep, or care anymore. I didn't want to live" (Holland, 1997). He developed a pattern of blaming his mother, his former girlfriend, and unsympathetic peers for his unhappiness. Three psychiatrists at the trial agreed that Luke displayed erratic coping skills and narcissistic traits, including lack of empathy and hypersensitivity to insult (Holland, 1997). Two of these experts testified that Luke appeared to suffer from a personality disorder, but did not exhibit psychotic tendencies. Luke did not have an extensive discipline history at school, however, he was known for antisocial

talk in the lunchroom, praising Hitler, and espousing Satanic worship. He and his fiends devised elaborate plans for murdering a friend's father (these were not carried out), Luke's mother, and his former girlfriend. He was not described as impulsive. Several months before the shooting incident, Luke had exhibited extraordinary cruelty to animals by brutally murdering his dog.

Family factors. Luke's father left the family when he was in primary school. His parents divorced a few years later. Luke stated at his trial that his mother changed after the divorce, and was seldom home (Holland, 1997). In his videotaped confession to police, he described his mother as "...that stupid lady ... she was always on me for my behavior ... everything was always my fault ... she always got an attitude with me ... I tried to be nice to her, but she hated me. She was always against me ... she was never there." Luke's family relationships were clearly troubled, and there are indications of lack of supervision and possible neglect. There was a perceived lack of support; however, acquaintances also noted that Luke's mother behaved in a "possessive" manner at times, accompanying him on dates (Schadler, 1998).

School and peer factors. As noted earlier, Luke was not well-accepted by peers. He had been a target of teasing and ridicule for many years at school. He felt persecuted and picked on. He also displayed prejudicial attitudes in his open admiration for Hitler (Morello, 1997, October 22). It is not known if Luke had displayed achievement problems or low school commitment, however, he was not involved in school activities. Luke's peer group appears to have had a great deal of influence over his behavior (Hughes, 1998, June 12). Two of his friends were later charged with conspiracy in the shootings. Luke and five other boys had formed a group they called "the Kroth" after a satanic verse. The group shared a fascination with satanism, the writings of Adolf Hitler, war, and weaponry. They held meetings at Luke's house, discussing plans for violence and revenge against those whom they perceived were "against them" (Hughes, 1998, June 12).

Societal and environmental factors. Members of Luke's antisocial peers group bragged in school about having access to assault weapons; however, it is not known if Luke had access to weapons at home. He and his friends shared an interest in video games depicting graphic violence. They openly discussed their interests in weapons, war tactics, and demons (Schadler, 1998). In personal communications written prior to the attack, which were shared at trial, Luke had written, "I am the embodiment of evil...I have no mercy for humanity for they created me, they tortured me until I snapped and became what I am today" (Pressley, 1997, October 22).

Situational factors and attack-related behaviors. Luke reported that part of his motivation for the attack was revenge against a former girlfriend for perceived rejection. She had recently begun seeing other boys, and this had angered Luke greatly (Bisall, 1997, October 2). Luke and his friends reportedly planned the attack over a period of days, and he reported being encouraged by his friends to kill his mother. The group's plans had included an elaborate plan to escape to Louisiana, then to Mexico, and ultimately to Cuba by boat (Holland, 1997). Luke had communicate his intent to peers, had shown a clear interest in targeted violence, displayed feelings of persecution, and had a relational loss with accompanying feelings of despair. Those who knew him well were aware of his intentions. They did not report them, but instead encouraged Luke

to take action. Fame and recognition appeared to figure prominently in Luke's motivation. After his arrest, he reportedly stated, "The world is going to hear from me now. I am probably going to be very famous" (Courtroom Television Online, 1998).

Paducah, Kentucky

On the morning of December 1, 1997, 14-year-old Michael Carneal arrived at school before classes and shot several students who were participating in a morning prayer group in a school hallway. Three students were killed and five were wounded.

Individual factors. Michael has been described as an angry boy who regularly teased and taunted classmates who participated in a prayer group at school. While not known for physical aggression, Michael was known for "rude and obnoxious" behavior toward his classmates (Bridis, 1997a, December 2). He made verbal threats toward peers, and talked about shooting people and "taking over the school." He was considered a "prankster" by many of his classmates, and had a history of self-reported delinquent acts including theft, selling parsley to classmates as marijuana, and downloading internet pornography to distribute around his school (Blank, 1998, October 12). He was disciplined at school for unauthorized internet use and minor acts of vandalism. His teachers described him as an "unexceptional student" who did not participate in sports or other activities (Bridis, 1997b, December 3).

According to his friends, Michael had made threats that "something big" was going to happen the day of the shooting and warned one boy to stay away from the prayer group that morning. He warned others in the week prior to the shooting not to be in the school lobby that Monday because it was going to be a "day of reckoning." He announced that he was planning to "bring a gun to school and go off" (Abrams, 1997, December 3). He had written a story a boy who was teased by popular students and subsequently murdered them at school and brought the bodies to his mother as a gift.

Michael was described by peers and former teachers as somewhat impulsive, "jittery" and "hyperactive," though it is not known if he had a previous diagnosis of attention problems. At his trial, the psychiatrist for the defense issued a diagnosis for Michael of Schizotypal Personality Disorder and Depression (Lawrence, 1998). Michael reportedly exhibited some paranoid ideation. It is reported that he covered the air vents in his bathroom to avoid being seen by others, and slept in his living room to avoid predators, which he believed tapped on the windows of his room. He claimed that he always thought that other people were talking about him (Bowles, 1997, December 3). He later blamed his violent outburst on peers who had teased him at school.

Family factors. According to psychiatric reports from Michael's trial, he was never close to his father. His older sister was class valedictorian and a popular student who reportedly got much of the family's attention. His sister reportedly told psychiatrists that "Michael tries to be as good as me...and he can never measure up" (Blank, 1998, October 12). It appears that Michael did not feel well-supported by his family.

A pending civil suit brought by the victims of the shooting is based upon accusations that Michael was not properly supervised at home, and that his mental health needs went unrecognized by his parents (Lawrence, 1998). Police reports indicate that Michael had assembled a collection of weapons and ammunition in his bedroom, which was left in plain view (Abrams, 1997, December 3). He had reportedly prepared for the shooting by shooting at balls in his yard along with a friend after school. These activities apparently went unnoticed.

School and peer factors. Peers described Michael as aloof and shy. He felt rejected and ridiculed by his peers (Associated Press, 1998a, December 19). He reported at trial that he was called “nerd,” “crack baby,” and “freak” by his classmates. He reportedly lacked assertive communication skills, and felt persecuted at school. He disliked school and stated: “I did not feel as though anyone really liked me.” He strongly desired the approval of his classmates (Blank, 1998, October 12).

Michael reportedly had a small group of friends with whom he would plan episodes of mayhem and destruction at school. Michael and his friends had talked for years about one day “taking over the school” with guns, destroying computers and lockers, and creating chaos (Bartleman, 1998, December 17). Peers did not appear to take these plans seriously.

Societal and environmental factors. Michael had access to firearms at home and through his neighbors. In his bedroom, he had accumulated seven guns and 700 rounds of ammunition (Blank, 1998, October 12). The guns were taken from his parents’ bedroom, and the others were taken from his neighbor’s garage. Michael reported that he had seen the movie “The Basketball Diaries,” in which a character breaks down a door with a religious symbol and begins shooting fellow students at a Catholic school. He mentioned this scene when questioned by investigators following the attack (Bowles, 1997, December 3). Michael was fascinated by firearms and preoccupied with his “plans” for revenge on fellow students.

Situational factors and attack-related behaviors. Michael had experienced a recent rejection by a girl whom he liked. She reportedly did not return his interest (Bartleman, 1998, December 17). She was one of the students killed in the shooting. Michael was also upset about having been labeled as a homosexual in a school gossip sheet. He communicated with more than one friend directly that he planned to bring guns to school on the day of the shooting, and had apparently prepared for that day well in advance. His friends were aware that he had guns in his possession, and he had practiced using the weapons with one of his friends. Michael had shown an interest in targeted violence and had feelings of persecution. He lacked environmental supports that might have decreased the likelihood of an attack, and believed that he would be respected for bringing the guns at school. When interviewed in prison a year after the shooting, Michael commented that “people respect me now” (Blank, 1998, October 12).

Jonesboro, Arkansas

On March 24, Mitchell Johnson, age 13, and Andrew Golden, age 11, pulled the fire alarm at Westside Middle School. The two boys hid in the woods outside of the school and began shooting at students and teachers as they exited the building. Four female students and a teacher were killed, and 10 others were wounded.

Individual factors. Mitchell Johnson had a long history of angry outbursts, fighting with peers, and threatening others at school. He had been suspended three times during the school year prior to the shooting. His physical aggression included fighting with teachers when disciplined. Mitchell was known to regularly threaten to “beat up” his peers after school (Breed, 1998, March 26). Mitchell talked about wanting to hurt people (BBC News, 1998, March 26), and bragged about being a gang member and using marijuana (Jeter, 1998, March 30).

Mitchell had made previous suicide threats, and had talked about killing himself at age 10. He had received some brief psychiatric counseling a year prior to the attack. Mitchell wrote an essay at school about shooting squirrels in a thinly veiled reference to fellow students when he was angry about a recent suspension. He was described by one of his teachers as “sneaky and manipulative” (Heard, 1998a, March 24). According to both his father and his attorney, Mitchell was sexually abused by an older neighborhood boy when he was in primary school. Mitchell was later accused of sexually molesting a 2-year-old girl and had charges pending for that offense.

Mitchell had talked about bringing a gun to school, but it is not known if this occurred prior to the day of the shooting. He was known to have threatened a peer with a knife on one occasion. Mitchell and Andrew had a detailed plan for the attack that included packing provisions in a stolen van so that they could hide in the woods for several days. They had mapped out travel plans that led eventually to Mexico (Heard, 1998b, March 27).

Andrew Golden was described by neighbors and peers as a boy with a “foul mouth and short temper” (Jeter, 1998, March 30). Neighbors reported at trial that Andrew picked on and struck little girls in his neighborhood and used foul language toward peers and adults. He was frequently seen in his neighborhood wearing camouflage outfits with a hunting knife strapped to his leg. Andrew once shot a peer in the eye with a popgun loaded with sand while at school (Harris, 1998, August 11). He reportedly threatened violence toward peers and planned the shooting in detail along with Mitchell Johnson.

Family factors. Mitchell Johnson’s parents separated when he was 8 years old, after a period of escalating family conflict. They divorced a year later. There was considerable disagreement between the parents over the living situation for Mitchell and his younger brother. During a contested stage of the divorce, Mitchell and his brother were sent to live with their grandmother for several months, where they slept on a couch or the floor (Booth, Schwartz, & Mencimer, 1998, April 5). Mitchell’s biological father had a sporadic employment history and a conviction for theft. After the divorce, his mother moved with her sons to a new community and worked long hours as a corrections officer in a federal prison. She later met and married one of the inmates (Associated Press, 1998b, September 1). Mitchell’s family life was characterized by a history of conflict, parental antisocial behavior, and inconsistent supervision and support.

Andrew Golden had lived in Jonesboro with both of his parents since birth. There is little information available about his family life. Neighbors reported to police that Andrew’s parents both worked long hours and that Andrew was often left at home alone (BBC News, 1998, March 26).

School and peer factors. Mitchell Johnson was reportedly not well-liked by peers. He was sensitive about his weight and reported being frequently teased in school about being “chubby.” At school, Mitchell was described by classmates as a “braggart and a bully” who picked frequent fights and was often “whipped by his peers for talking too tough” (Booth et al., 1998, April 5). He expressed a great deal of anger toward teachers who had disciplined him. The teacher killed in the shooting had placed him in school suspension just prior to the shooting (Jeter, 1998, March 30). Mitchell did not believe that he fit in with his peers. He felt picked on and persecuted, and did not feel a sense of commitment to school. His friendship with the younger and antisocial Andrew appeared to reinforce his propensity for violence.

Little information is available about Andrew's social and school functioning, although it seems unlikely that a boy described by neighbors and classmates as "surlly and evil-acting" was popular with peers.

Societal and environmental factors. Mitchell Johnson and Andrew Golden reportedly both had access to firearms. Andrew Golden was given handguns and rifles to use beginning at age 6. He was trained by his father in shooting moving targets (Harris, 1998, August 11). The guns used in the shooting were taken from an unlocked cabinet at Andrew's grandfather's house (Heard, 1998c, March 28).

Mitchell Johnson was reported to be "obsessed" with violent "gangster rap music." One of his teachers testified in court that he brought this music to school with him, listened to it on the bus, tried listening to it in class, and sang lyrics over and over at school about "coming to school and killing all the kids" (Heard, 1998b, March 27). Both Mitchell Johnson and Andrew Golden were fascinated with weapons and violence.

Situational factors and attack-related behaviors. Mitchell Johnson was angry with a teacher who had suspended him recently and had made threats against this teacher in front of peers. He had also recently been rejected by a girlfriend and had talked openly on the day before the attack about shooting her, then killing everybody else in the building (Associated Press, 1998c, March 30). He reportedly told a classmate on the day before the shooting that "Tomorrow you'll all find out if you live or die" (Breed, 1998, March 26). Many of Mitchell's peers heard these threats, but did not take them seriously.

Andrew and Mitchell had both threatened others and made elaborate preparations for their attack including, stealing a van, stealing weapons and ammunition, preparing food and camping gear for their escape, arranging for the fire alarm, and securing their hiding place outside of the school. Mitchell had experienced a recent relational loss and loss of status associated with his most recent suspension. Both boys had the interest, means, and unsupervised time to prepare for this attack. They both reportedly lacked social support systems that would have decreased the likelihood of violent behavior.

Edinboro, Pennsylvania

On April 24, 1998, one month following the Jonesboro incident, 14-year-old Andrew Wurst brought a pistol to a dance at school. He shot and killed a teacher and wounded two students and another teacher. Andrew was filmed laughing in the back of a police car after the shooting.

Individual factors. Andrew Wurst told a friend about 2 weeks before his attack that he wanted to emulate the boys who had killed a teacher and four students in Arkansas. He warned that same friend not to go to school that day, but she did not take his comments seriously (Hays, 1998, April 26). Andrew was described by peers and staff at school as a depressed and alienated boy who never smiled. He reportedly "hated his life, hated the world, and hated school" (Salters, 1998). He had allegedly planned to shoot nine students at the school dance, and then commit suicide. He shared this plan with two classmates a month before the shooting, and again on the day before.

Andrew was known to use marijuana and was nicknamed "Satan" by two of his peers due to his interest in violence and his fondness for dark subjects. He was also described as a "sinister" boy with a "sick sense of humor" who was obsessed with girls

(Becker, 1998, April 26). He had a history of verbal aggression, threatening others, and blaming others for his problems. He had no known history of mental health treatment prior to the attack.

Psychiatrists for the defense have stated that Andrew was delusional and paranoid at the time of the shooting, and that he displays symptoms of schizophrenia but cannot be diagnosed as such due to his age (Malloy, 1999, April 24). He will be pleading not guilty by reason of insanity when he goes to trial. His mental health status is currently a subject of some controversy.

Family factors. There is little information available about Andrew's family life. His peers have indicated that he was unhappy at home and had troubled relationships with his parents (Becker, 1998, April 26). There were conflicts about his grades and behavior, and a lack of perceived family support.

School and peer factors. Andrew was not well-liked by peers. He stood out due to his dark interests and threats of violence. He was reportedly socially isolated, and felt rejected by peers. His grades were poor and he lacked interest and commitment to school (Salters, 1998).

Societal and environmental factors. Andrew had access to firearms. The gun used in the shooting was his father's. He was reportedly fascinated with guns and death. He was a fan of "shock rock" music with lyrics about death and killing (Becker, 1998, April 26).

Situational factors and attack-related behaviors. Andrew had reportedly argued with his parents over his school grades the week before the shooting, and claimed to have been embarrassed by the teacher he killed (Hays, 1999a, March 9). He communicated his violent intentions to peers and was organized for his attack. He had an interest in violence and weapons, and had experienced a recent loss of status. He appeared to lack the sort of support system that would discourage violent behavior. He has been called delusional by his attorneys although is not known if he had a history of acting on delusional beliefs.

Springfield, Oregon

On May 21, 1998, Kipland "Kip" Kinkel opened fire in a high school cafeteria as students were socializing before starting classes. Two students were killed and eight others were injured. Kip had killed both of his parents the day before and their bodies were later found in his home.

Individual factors. Kip Kinkel had a history of uncontrolled angry outbursts that were noted prior to age 5. He was involved in frequent fights and was known for rejecting authority of any kind (Brandon, 1998, May 24). He had been diagnosed with depression as an adolescent and was prescribed Prozac, which he reportedly was no longer taking at the time of the shooting. He received therapy sporadically, and was at one time enrolled in anger management classes (Channel 6000, 1998b, May 25).

Kip was suspended from school on numerous occasions for actions such as kicking another student in the head, hurling a pencil at a classmate, and bringing a gun to school. He was on the football team, but reportedly seldom played because he was often benched for cursing at his coaches (Dodge, 1998, May 22). He bragged to peers

about killing and torturing animals. Neighborhood children reported that Kip had beheaded cats and displayed the heads on sticks, and once blew up a cow with explosives (Green, 1998, May 24). He had previously talked about suicide, and once gave a class presentation about bomb-building. He reportedly routinely read from a journal in front of his English class about his plans to “kill everybody” (Green & Filips, 1998, May 22). In his neighborhood, Kip had engaged in activities such as throwing rocks at cars from an overpass, covering houses with toilet paper, and giving a friend a tool for breaking into cars as a birthday present (Channel 6000, 1998a, May 22).

Family factors. Kip was reportedly an oppositional child who was difficult to socialize from early childhood on (Brandon, 1998, May 24). His parents were teachers, and attempted to provide a structured home life and educational enrichment, however, they confided in friends that they found it very difficult to manage Kip’s behavior. Kip had an older sister who was socially and academically strong. She reported to friends that at some point, her parents seemed to “give up” on trying to discipline her brother (Witner, 1998). He appeared to wear his parents down with his tantrums, threats, and acting out (Barnard, 1998, May 25).

Kip’s parents knew about his fascination with weapons and explosives. They felt that they could “channel” and control these interests by buying him guns and training him in shooting and gun safety (Brandon, 1998, May 24). There are no reports of neglect or abuse, however, a lack of supervision is reflected in the large arsenal of weapons and explosives that Kip had accumulated in his bedroom, and the large number of bombs he had assembled and placed around the house (Channel 6000, 1998c, October 1). He was reportedly very angry with his father at the time of the shooting for taking away some of his guns. His father reportedly relented afterward, and allowed Kip to keep one gun for “shooting bats” in the attic (Kaiser & Hayes, 1998, May 22). Kip’s father had discussed his son with others in the community, and had stated that he had never been able to “get close” to him. There appeared to be a perception on Kip’s part of a lack of family support, although his parents are described by acquaintances as concerned and conscientious (Brandon, 1998, May 24).

School and peer factors. Kip reportedly alternated between being withdrawn socially, and playing the “class clown” to get attention (Brandon, 1998, May 24). He was well-known at school for his fascination with weapons and violence. His middle school classmates had once voted him “Most Likely to Start World War III” (Kaiser & Hayes, 1998, May 22). His social and coping skills were poor, and he was known among peers for his “weird sense of humor” and hot temper (Channel 6000, 1998a, May 22). He complained of being picked on. Kip’s parents had recently been complaining to friends that Kip had begun associating with the “wrong crowd” at school (Dodge, 1998, May 22).

Societal and environmental factors. Kip had access to many firearms and explosives at home. Some of his guns were purchased for him by his parents as gifts (King & Murr, 1998, June 1). He was a fan of music and videos that portray graphic violence (Green & Filips, 1998, May 22). Kip’s fascination with weapons and explosives was well-known to his parents and peers (Channel 6000, 1998a, May 22).

Situational factors and attack-related behaviors. Kip had shared with classmates the details of his plan to bring a gun to school and shoot people, but they did not take his talk seriously. They were accustomed to hearing Kip talk about weapons and violence

(Green & Filips, 1998, May 22). He informed them that he was angry and was probably going to do “something stupid” on the day of the shooting. His friends reported later that Kip had been upset and embarrassed about being suspended the day before for trying to buy a gun from another student. He was also said to be upset with his parents for making arrangements to send him to a residential facility for conduct-disordered boys. His school performance and grades had been declining in the months prior to the shooting, and this was a source of tension within the Kinkel household (Dodge, 1998, May 22).

Kip clearly communicated his violent intentions. His interest in weapons and violence was obvious to all the knew him. He was well organized for his attack and had engaged in elaborate preparations. He lacked the kind of positive, prosocial relationships that would have discouraged violent behavior.

Littleton, Colorado

On April 20, 1999, 18-year-old Eric Harris and 17-year-old Dylan Klebold opened fire in their suburban high school, injuring 20 students. Fifteen people were killed, including the two gunmen, who committed suicide. They had brought explosives with them that day, which might have brought the death toll into the hundreds if they had been detonated successfully. During their attack, the two boys excitedly discussed which of their classmates should live and which should die, and laughed and congratulated each other as they shot students at close range.

Individual factors. Eric and Dylan had at least one prior scrape with the law. They were arrested together a year prior to the shooting for breaking into a car and were placed in a diversion program for juveniles (S. Cohen, 1999, April 26). A complaint had been registered with the local sheriff’s office about death threats that Eric Harris had made toward a classmate on the internet (Dube, 1999, April 23). Both boys had also been reported to police for setting off pipe bombs in their neighborhood (Brook, 1999). They were known as angry boys who spoke constantly of war and guns. Eric Harris had once made a video at school in which he bragged about his new guns (Joseph, 1999, April 21). Eric and Dylan had worked together to produce a film for a class which showed them gunning down athletes in the school hallways (Wilgoren & Johnson, 1999, April 23).

Eric Harris had a previous diagnosis of depression and was given the prescription drug Luvox. He reportedly stopped taking this medication shortly before the shooting. Eric was also known to drink bourbon whiskey, which, in combination with Luvox, may cause extreme agitation (Briggs & Blevins, 1999, May 2). Eric had once faked his own death by suicide after being rejected by a girlfriend. He was known for having a quick temper and for threatening to kill people.

Dylan Klebold was described by teachers as an angry boy who overreacted to small irritations. If someone bumped into him in a hallway, Dylan would say, “I’ll kill you” (Wilgoren & Johnson, 1999, April 23). Both Eric and Dylan had reportedly spoken to friends about their interests in the occult and their mutilation of animals (Humane Society of the United States, 1999). Eric and Dylan openly admired Hitler and were known to openly dislike blacks and Latinos (Weller, 1999, May 1). They were involved in frequent fights in the community (S. Cohen, 1999, April 26).

Family factors. There is little information available about the family lives of Eric Harris and Dylan Klebold. Eric Harris is said to have moved frequently during childhood due

to his father's work for the military. He had a very successful older brother who was an honor student and star football player in high school, and a high-ranking decorated pilot as a father. There are reports from acquaintances about some family conflict due to Eric's behavior (Briggs & Blevins, 1999, May 2).

Friends of the Klebold family have reported that Dylan's parents were concerned about his rebellious behavior and fascination with black clothing, death, and the "goth culture." There are indications that there was conflict between Dylan and his parents regarding his interests, friends, and behavior. There are also signs that Dylan's father suspected that his son was a threat to others. When he heard on the news about the massacre at the high school, he reportedly contacted authorities with the suspicion that his son was involved. He offered to come to the high school and serve as a mediator, however, it was too late (Briggs & Blevins, 1999, May 2).

There are several indications that Eric Harris and Dylan Klebold lacked supervision in their activities. The boys had stockpiled arsenals of weapons in their rooms and many of these were left out in plain view (S. Cohen, 1999, April 26). Eric Harris had posted instructions for making pipe bombs on an internet site, and reportedly had many bomb components and a sawed-off shotgun barrel openly displayed in his bedroom. There are lawsuits pending against both families for failure to supervise their sons' activities and recognize their violent inclinations.

School and peer factors. Both Eric and Dylan have been described as outsiders who were pushed to the fringe of high school society. They were involved with a dark subculture that espoused violence and exalted militaristic images (S. Cohen, 1999, April 26). They and the other members of their small antisocial group, named the "trench coat mafia," were frequently taunted and harassed by athletes at school. Their group was known as progun and antireligion, antisociety, and antiminority. They have been described as a bitter, nihilistic, and dissatisfied group that was often the target of other students' jokes. Peers have stated that it was clear that Dylan was "socially ostracized" and "really felt unloved" (S. Cohen, 1999, April 26). The boys appeared to bond together as a result of not fitting in socially in high school (S. Cohen, 1999, April 26). Their classmates described them as "not well-liked in school and no one treated them well" (McDowell, 1999, May 2).

Eric and Dylan had been telling classmates that they weren't going to take the taunting and harassment anymore, and that "We are going to shoot you." Peers later stated they knew that the boys were capable of violence, but they really didn't know they would "do it" (Joseph, 1999, April 21).

Both Eric and Dylan were outsiders in school, felt rejected and persecuted by peers, had prejudicial attitudes, and were part of an antisocial peer group. They were isolated except for the companionship of their fellow "trench coat mafia" group members.

Societal and environmental factors. Eric and Dylan reportedly shared a consuming interest in violent video games. They also shared a love for "shock rock" music that glorifies killing and death. They apparently had access to explosives and other bomb-making materials and were able to purchase guns through a friend of Eric's.

Eric Harris thought about war, fantasized about war, and wrote about war. When he heard that the United States was on the verge of bombing Yugoslavia, he was heard to comment, "I hope we go to war because I'll be the first one there...to shoot everyone" (Achenbach & Russakoff, 1999, April 28). His classmates described him as "obsessed with military stuff" (Briggs & Blevins, 1999, May 2). Dylan Klebold was said to share Eric's interest in weapons and violence.

Situational factors and attack-related behaviors. A diary left by Eric Harris indicates that he and his friend began planning their school attack up to a year before it occurred (Salvatore, 1999). The boys had been acquiring weaponry and building bombs for a considerable period of time. They had a school map that noted lighting conditions in various areas and possible hiding places. They had monitored the lunchrooms to determine when the greatest number of people would be there.

Eric and Dylan had written notes and plans indicating that they were planning to kill at least 500 people (Dube, 1999, April 23). Notes left by Eric Harris in his journal stated "We want to be different, we want to be strange and we don't want people putting us down...we're going to want to punish them" (Hendren, 1999, April 25). Both boys were heard to talk about plans for revenge at school, stating things like "It's time to get back at the school" (Dube, 1999, April 23).

Eric Harris had high hopes of enlisting in the Marines. During the week prior to the shooting, he was interviewed by a Marine recruiter at home. His parents told the recruiter that Eric was taking the drug Luvox. Eric had stated on his application that he did not take any prescription drugs, so the Marines rejected him (Achenbach & Russakoff, 1999, April 28). This was reportedly a serious disappointment and loss for Eric.

Eric and Dylan had communicated violent intentions to others, had an obvious interest in weapons and violence, and were well-organized for their attack. Eric had experienced a recent loss. Neither boy appeared to have strong prosocial school, family, or peer group bonds which would mitigate against their acting on their violent intentions. They had a motive, means, and opportunity.

Conyers, Georgia

On May 20, 1999, 1 month following the Littleton shooting, Thomas Solomon, age 15, opened fire at his suburban high school about 20 minutes before classes were scheduled to begin. Six classmates were injured. Fortunately, he was apprehended very quickly and there were no fatalities. Witnesses would later describe Thomas Solomon as "jumping up and down and laughing...having a pretty good time" during the shooting (Pilcher, 1999, May 22).

Individual factors. Thomas was not known as a physically aggressive boy, but he had made threats against classmates and about shooting people. He reportedly had an argument in class with another boy on the day before the shooting during which he threatened to "blow up the classroom." Later that day, he told a friend that he had no reason to live (Special Report: Troubled Kids: Just a Routine School Shooting, 1999).

Thomas was a long-term user of Ritalin. He had a previous diagnosis of an attention deficit disorder, and a history of impulsive behavior. His lawyer also stated in a news conference that there was "some genetic history in his family" that may have affected his behavior as well. The nature of any family history of psychiatric disorders has not been released to the public. Family acquaintances have stated that Thomas was previously treated for depression (Dotson, 1999, May 30).

Thomas had previously brought a gun to school. This was reported to school administrators, however, it is not known what sort of disciplinary action, if any, was taken. When police searched his home, they reported finding weapons, bomb recipes, and a threatening handwritten note which made reference to a desire to emulate the assailants in the Littleton shooting (Pressley, 1999, May 23).

Family factors. Very little information has been released about Thomas' family life. He lived with his mother, stepfather, and 13-year-old sister in a quiet neighborhood. Both parents worked until evening each day, and the family reportedly "kept to themselves" (Saladino, 1999b, May 21). Thomas appeared to lack supervision during the week due to his parents' work schedules.

School and peer factors. Thomas Solomon has been described by peers as a quiet boy who kept to himself. He appeared shy and had few close friends (Saladino, 1999a, May 21). He was reportedly teased by some at school and had marginal social skills. Classmates referred to him as a "nerd" (Firestone, 1999, May 21). His school performance had been declining during the year prior to the shooting. He had become increasingly disinterested in school (Special Report: Troubled Kids: Just a Routine School Shooting, 1999).

Societal and environmental factors. Thomas was known around his neighborhood as the boy "with lots of guns in his basement." He frequently showed them to neighborhood children. While they were kept in a locked cabinet, Thomas was proud to point out that he had access to the key. He seemed fascinated with weapons in general. He had his own gun, which was given to him by his father for his birthday. He kept this in a dresser drawer in his room (Dotson, 1999, May 30). He used his father's guns in the attack at school. Thomas was also known to be an avid player of video games depicting graphic violence, and a fan of violent "gangster rap" music.

Situational factors and attack-related behaviors. A few days before the shooting, Thomas had reportedly had an argument with his girlfriend of 2 years, which resulted in a break up in the relationship. Thomas was described as devastated by this loss, and had become sullen and withdrawn (Saladino, 1999b, May 21). His grades had been declining and he appeared not to be trying anymore at school. He had talked to classmates about killing himself, and about bringing a gun to school, however, no one took him seriously (Pilcher, 1999, May 22). Thomas had told classmates that he thought the Littleton school shooting was "cool" and that he could also commit such a crime (Phelan, 1999, August 9).

Thomas had communicated violent intentions to peers and had a widely recognized interest in weapons and violence. He was apparently organized and prepared for his attack. He had a recent loss, and lacked a positive social support system.

COMMONALTIES AMONG CASES

Common factors among the school shooting cases are summarized in Table 4. There are a number of risk factors identified in the checklists reviewed above which are applicable to most of these cases, and some which do not apply to many.

Individual Factors

Among the individual factors, uncontrolled anger, depression, blaming others for problems, threatening violence, and having a detailed plan are common to most of the assailants. Most had a history of aggression, either physical or verbal, or both, and discipline problems at school or home. Three of the boys had previously brought a weapon to school, received mental health treatment, and had known problems with substance abuse. Only two of them exhibited poor grooming or had known problems

TABLE 4. Common Factors Among School Shooting Cases

Factors	Case									
	1	2	3	4	5	6	7	8	9	10
Individuals										
Threatens violence	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Has a detailed plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blames others for problems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
History of aggression		✓	✓	✓	✓	✓	✓	✓	✓	✓
Uncontrolled anger		✓	✓	✓	✓	✓	✓	✓	✓	✓
Depression	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Suicidal threats		✓	✓	✓	✓	✓	✓	✓	✓	✓
History of discipline problems		✓	✓	✓	✓	✓	✓	✓	✓	✓
Violent writings or drawings	✓			✓	✓	✓	✓	✓	✓	✓
Cruelty to animals		✓	✓					✓	✓	✓
Substance abuse		✓			✓				✓	
Previous mental health treatment					✓			✓		
Has brought weapon to school						✓		✓		
Poor grooming		✓	✓							
Impulsivity/hyperactivity				✓				✓		
Family										
Lack of supervision		✓	✓	✓	✓	✓		✓	✓	✓
Troubled family relationships	✓	✓	✓	✓	✓		✓	✓		
Perceived lack of family support							✓	✓		
Victim of abuse or neglect	✓	✓			✓					
School/peer										
Poor coping and social skills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Feels rejected by peers	✓	✓	✓	✓	✓		✓	✓	✓	✓
Feels picked on, persecuted	✓	✓	✓	✓	✓		✓	✓	✓	✓
Socially isolated	✓	✓	✓	✓		✓	✓	✓	✓	✓
Antisocial peer group	✓	✓	✓	✓	✓	✓		✓	✓	✓
Low school commitment/achievement	✓	✓	✓	✓			✓		✓	
Intolerance/prejudicial attitudes		✓	✓						✓	✓
Social environmental										
Access to firearms	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fascination with weapons and explosives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Preoccupation with violent media/music	✓	✓	✓	✓	✓		✓	✓	✓	✓
Situational										
Stressful event/loss of status	✓	✓	✓	✓	✓		✓	✓	✓	
Sudden decline in functioning	✓	✓		✓				✓		
Attack-related behaviors										
Interest in targeted violence/weapons	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Is organized for attack	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Has communicated violent intentions	✓	✓	✓	✓	✓		✓	✓	✓	✓
Lack of prosocial support system	✓	✓	✓	✓	✓		✓	✓	✓	✓
Experience of recent loss	✓	✓	✓	✓	✓		✓	✓	✓	✓
Harassing or menacing		✓			✓	✓		✓	✓	✓

Note. Case numbers 1: Moses Lake, WA; 2: Bethel, AK; 3: Pearl, MS; 4: Paducah, KY; 5: Jonesboro, AR (M.J.); 6: Jonesboro, AR (A.G.); 7: Edinboro, PA; 8: Springfield, OR; 9: Littleton, CO (E.H.); 10: Littleton, CO (D.K.).

with hyperactivity. Impulsivity did not appear to be a significant factor in most cases. The attacks were carefully planned and orchestrated. More than half of the boys had produced violent writings or drawings and had made suicidal threats. Cruelty to animals was common to approximately half of the assailants. Researchers who are currently in the process of interviewing the assailants suspect that suicidal intent was present in all cases (R. Fein, personal communication, July 19, 1999).

Family Factors

Most of the boys had a lack of parental supervision and troubled family relationships. This may be true for all of the cases, however, information to confirm this was not available. Most lacked perceived family support. Few had experienced known abuse or neglect, or were known to have witnessed domestic violence. Only two had parents with a history of antisocial or criminal behavior. Degree of attachment and parenting practices in these cases has been difficult to assess, however, there are indications of troubled parent-child relationships and ineffective parenting in most of the families.

School and Peer Factors

Socially, these boys were generally isolated and rejected by peers. Most had poor social and coping skills and felt picked on or persecuted. In most cases, they had an antisocial group of friends. They were neither outstanding students nor committed to school. Four exhibited intolerance and prejudicial attitudes. In general, the social functioning of these boys was remarkably similar. As a group, they lacked social support and prosocial relationships that might have served as protective factors.

Societal and Environmental Factors

In all cases, there was easy access to firearms. Most of the boys had guns in the home and used personal or family weapons in their attacks. They were all fascinated with guns and explosives to the extent that it was noticeable to peers and teachers. Almost all of the boys were fans of video games, music, and books featuring graphic violence. Few came from disorganized neighborhoods characterized by high crime rates or poverty.

The schools where the shootings occurred varied in size and geographical location. Approximately half of the incidents took place in southern states and half in other regions of the country. Most took place during unstructured periods of time at the beginning of the school day.

Some of the incidents appear to be clustered together in time. In 1997, Evan Ramsey of Alaska and Luke Woodham of Mississippi acted within 2 months of each other. It is not known if Luke was influenced by publicity from the Alaska crime. There were three shootings within a 3-month period in 1998. In one of these, the assailant, Andrew Wurst, had stated that he wanted to imitate the Jonesboro crime (Hays, 1999b, May 22). During 1999, two incidents took place just 1 month apart. In the second of these, Thomas Solomon had stated to peers and in a note left at home that he wanted to emulate the Littleton crime (Phelan, 1999, August 9). It is not known if assailants in other cases had planned to mimic prior crimes. The clustering of suicide cases among adolescents is a well-documented phenomenon (Weiczorek, 1984) and the clustering of adult violence over time has recently been documented (Beale, Clarke, Cox, Leather, & Lawrence, 1999). There may be a similar phenomenon at work in some of

the school shooting cases. This implies a need for a thoughtful review of the forms of media attention given to the assailants in these cases.

Situational Factors and Attack-Related Behaviors

A decline in functioning in the days or weeks prior to the shooting was noted in roughly half of the cases. Most of the boys had experienced a recent relational loss, stressful event, or loss of status. In all cases, violent intentions were clearly communicated to others, often including the time and place of the attacks. These were not taken seriously by peers. Presence of bystanders appeared to be important in all cases. The assaults were all committed in school settings where there would be a large number of observers. In Bethel, Alaska, Evan Ramsey actually invited others to observe his actions. Barry Loukaitis prepared and purchased a special outfit to wear for the occasion. Making an impression on others seemed to be one of the goals in each shooting. These were very public acts of violence. Fame and respect were anticipated outcomes.

All of the boys had an obvious interest in weapons or targeted violence and were well-organized for their attacks. Their behavior was consistent with their threats and warnings. Few were noted to be harassing or menacing others prior to their attacks or suffered from delusions or hallucinations that were enacted. The most commonly stated motives for the shootings were to obtain justice against peers or adults whom the assailants believed had wronged them somehow and to obtain status or importance among peers. In most of the cases, the assailants were angry about being teased or ridiculed and desired revenge against particular individuals or groups. In roughly half of the cases, there was also anger against a parent or teacher for “unfair” disciplinary actions and a failed romantic relationship. See Table 4 for the common factors among school shooting cases.

APPLICABILITY OF RISK ASSESSMENT METHODS

The risk assessment checklists previously summarized in Table 3 differ in their degree of applicability to these school assaults. All factors on the list compiled by the FBI were seen in almost all of the cases. This is not surprising in light of the fact that it was compiled through analysis of actual school shooting cases. The list of warning signs compiled by the National School Safety Center included 13 of the 17 most common characteristics the cases. This checklist was compiled for factors relating to school violence, but not specifically for multiple-victim assaults. Checklists developed by the National Association of School Psychologists and the American Psychological Association were designed to summarize characteristics of youths who commit a broad range of violent acts in a variety of settings. These included fewer than half of the factors most common to the school shootings. This supports the notion that the school shooting incidents are characterized by a set of risk factors or warning signs that differ from those that have been associated with youth violence as a more general category of behavior. Checklists with outcome criteria most closely matching the target behavior provided the best fit with the cases.

When a child has made a threat or gesture indicating an interest or intention to commit a lethal school assault, it may be most helpful to look at those indicators that are most relevant to this specific form of violence. Factors that appear to be relevant to other types of aggression or violence such as child abuse or neglect, hyperactivity,

academic failure, poverty, lack of educational opportunities, and substance abuse may not be as important.

Many of the predictors of violent behavior for ages 12 to 14 identified by Lipsey and Derzon (1998) summarized in Table 2 appear to apply to these cases. In general, predictors ranked as most important in their longitudinal research are common to most of the school assailants. These include a lack of social ties, antisocial peers, general offenses, aggression, poor attitude toward school, and presence of a psychological condition. Those factors that they found to be less predictive of adolescent violence, were not as common to the school assailants. These weaker predictors include antisocial parents, person crimes, low family SES, abusive parents, and substance use. Lipsey and Derzon's list of the strongest predictors of violence among adolescents includes some factors that are seen in most of the shooting cases, but does not include important situational variables and attack related behaviors.

The threat assessment approach developed by the U.S. Secret Service (Fein & Vossekuil, 1999) includes questions that are important in all of the school shooting cases. Assuming that the assailants had been brought to the attention of school or mental health personnel due to threats or possession of weapons, the questions outlined in this approach would have been of great value. *In all cases, violent intentions were communicated to peers and there was an interest in weapons and targeted violence.* The assailants were organized and prepared, and their actions were consistent with their threats. In most cases, there was a loss that had led to feelings of desperation or despair, feelings of persecution, and an absence of supportive relationships. Opportunity to commit a violent act existed through access to the weapons and a lack of supervision. Motives of revenge, obtaining justice, suicide, and acquisition of status or fame were seen in all cases. The threat assessment approach appears to be a potentially valuable tool for risk assessment when combined with attention to factors outlined by the FBI, the National School Safety Center, and Lipsey's meta-analytic longitudinal research.

There was a lack of expressed concern among those who knew the school assailants that they would act on their threats. In all cases, there was a failure of peers to report threats of serious violence and of peers, parents, and professionals to consider them seriously. A risk assessment requires that an individual be brought to the attention of an appropriately trained professional. Public awareness campaigns and violence hotlines designed to address the problem of unreported threats are currently being developed by many school districts in preparation for the 1999/2000 school year. It is not yet known whether these will prove effective in a cost and benefit analysis.

Reasons why youths do not communicate information about threats or dangerous behavior are not well-understood. In a study of why actual incidents of violence among youths are often not reported to adults, the Safe Schools Coalition (1999, January) interviewed adolescents in Washington and found that fear of not being believed, fear of retribution, fear for the well-being of the aggressor or some other party, and a belief that nothing will be done are the most common reasons cited for not reporting violence. Many adolescents expressed a sense of embarrassment or shame in knowing about the violence and were fearful that sharing information would reflect negatively on them or result in unfair disciplinary actions. There was also a sense of hopelessness and not knowing where to go for help. Risk assessment in schools will be most successful in a climate where adolescents feel safe and confident in sharing information about threats of violence. Creating the awareness and channels of communication for sharing concerns, and building trust between students and staff are clearly essential in creating safer schools (Dwyer et al., 1998).

CONCLUSIONS AND RECOMMENDATIONS

Psychologists working in educational and clinical settings are likely to be called upon increasingly to assess children who have been identified as posing a threat of serious violence in schools (Dwyer et al., 1998). Referral sources are most likely to be schools or other health and human services agencies. Children who are referred for such assessments are likely to have exhibited some form of behavior that was perceived as threatening, such as making verbal or written threats, producing violent drawings or writings, or possessing a weapon.

When a child or adolescent is referred for assessment of risk for violence, the goals of performing such an assessment should be protection of others and obtaining appropriate services and treatment for the child. It is important for practitioners to clarify the type of youth violence that is of concern, prior to beginning an assessment. As previously noted, risk factors for school shootings appear to differ in a number of ways from the sets of factors associated with other forms of aggressive and violence behavior. Prior to beginning a risk assessment, practitioners are advised to define the type(s) of risk that is of concern to the referring party (i.e., short-term or long-term risk), the type of violence of concern (i.e., physical assault, sexual assault, domestic violence, school violence, or lethal assault), and the context of the assessment (i.e., how the information will be utilized in a continuum of care (Johnson, 1999). Assessment procedures may then be selected that are best suited to the purpose at hand.

No single instrument has been validated for use in risk assessment for serious juvenile violence. Traditional psychological assessments have not been found to be useful in predicting violence (Katz & Marquette, 1996). There is no single psychological profile or assessment method that has received wide support. In the absence of validated assessment tools, clinicians may be best advised to utilize methods that include multiple informants, multiple variable domains, and multiple methods (Le Blanc, 1998). More traditional assessments of psychological functioning may be utilized to screen for mental health problems that may contribute to a potential for violent behavior, such as depression, conduct disorder, suicidality, and delusional disorders; however, they should not be relied upon exclusively in risk assessment. Clinical interviews and rating scales may also be helpful in providing information about attributional biases, coping styles, and "social maps" that can be used to guide intervention (Garbarino, 1999b).

Whether practicing in a school or clinical setting, psychologists may increase accuracy of assessments by utilizing a combination of clinical and empirical data. An approach that includes clinical assessments along with interviews with parents, teachers, others acquainted with the child, and with the child is likely to provide the most complete information about pertinent risk factors. Examination of school and court records (if applicable), and previous mental health assessment and treatment records is also important. Information from these interviews and record reviews may then be considered in relationship to the research literature relevant to the type of risk, targeted outcome, and developmental level of the individual.

A general rule is that multiple warning signs and risk factors may suggest a greater risk for violence. The more signs there are and the greater the opportunity, motivation, and access to weapons, the greater the possibility that the child may commit a violent act. There is not yet sufficient empirical data on predictive methods to support use of cut-off scores, statistical formulas or statements of probability (Le Blanc, 1998). Reporting results of risk assessments in terms of a continuum of categories may be the most accurate method of describing risk for violence. Monahan and Steadman (1996)

recommend a descriptive approach to risk communication, which uses categorical designations based upon meteorology. Their system includes the following categories of risk:

- Category 1: *Low violence risk*. Few risk factors are present. No further inquiry into violence risk or special preventative actions are indicated.
- Category 2: *Moderate violence risk*. Several factors are present. Gather additional information and monitor the individual more closely than usual.
- Category 3: *High violence risk*. A number of key factors are present. Give priority to gathering additional information and close monitoring. Make preparations should the situation deteriorate.
- Category 4: *Very high violence risk*. Many key factors are present. Enough information is available to make a decision. Take preventative action now (e.g. intensive case management or treatment, hospitalization, and warning potential victims).

These categories were developed for use with adult offenders; however, they may be useful with children and adolescents as well, particularly when combined with specific intervention and supervision recommendations.

A detailed risk communication should include strategies for risk management, treatment options, likely compliance with intervention, roles and responsibilities of those who are to intervene with the youth, and a reevaluation date (Johnson, 1999). A description of the individual's coping skills and resources should also be present so that these may be incorporated into efforts to increase protective factors along with addressing problem areas.

Risk communications should state that assessments are of time-limited value and need to be updated periodically. It should also be noted that assessments apply to specific sets of circumstances. Circumstances may change and it is important to consider how these changes can affect outcomes. Situations and precipitant that are most likely to lead to a violent outcome and the type of outcome that is most likely should be described along with protective measures (Johnson, 1999).

Thorough risk assessments and communications can only be accomplished when students are brought to the attention of psychologists with the necessary training. One of the most troubling aspects about each of the school shooting cases was that the assailants had made detailed threats of violence. In many cases, they had shared their plans with several peers, far in advance, more than once, and in great detail. Psychologists in the school and community may be able to contribute to solutions to this problem by working with school districts to design educational programs and procedures to increase reporting of threats.

The American Psychological Association's *Warning Signs* bulletin and the recent MTV informational campaign are positive steps in this direction (American Psychological Association, 1999). These efforts were designed to heighten awareness among teens of warning signs for youth violence and the importance of seeking help for peers who appear troubled. Teaching young people about the signs of distress among their peers and the advantages of helping them to access needed assistance is a priority for secondary schools. It will be important to stress that referral of peers to mental health staff is not akin to "turning them in" to authorities. The objective is to provide individuals with the help they need to work out personal problems, and to prevent death or injury to that person and others.

Providing a system for anonymous reporting may also be helpful for those who are fearful of retribution or the social consequences of being seen as an informer. One

such system is available nationally. The Report-it Hotline is a national commercial enterprise that several school districts in Oregon will be subscribing to in the upcoming academic year. Operators take calls from students and discuss concerns about dangerous behavior or threats. These reports are then forwarded to the appropriate school and law enforcement personnel. The reports may be made anonymously. There is currently no data on the effectiveness of this or similar programs.

In summary, clinicians in school and clinical settings who are called upon to assess the risk for lethal school violence should be well-informed about risk factors specific to this outcome. In the process of assessment, clinicians need to address overall mental health needs as well as risk factors associated with this form of violence. Utilizing multiple sources of data to assess individual factors, family characteristics, school and peer factors, societal and environmental variables, situational factors, and attack-related behaviors appears to be the most promising approach. Reporting the findings descriptively, addressing specific risk management and intervention needs, and stressing the contextual and time-limited nature of assessment findings may be most beneficial to all concerned. Addressing the problem of unreported threats is a priority.

There is always a danger that an assessment may lead to negative outcomes for clients. These may include stigmatization, placement in programs that may do more harm than good, exclusion from desired services and programs, and self-fulfilling prophecies (Johnson, 1999; Le Blanc, 1998). To minimize this potential for harm, clinicians are advised to become familiar with the context of the assessment, the available continuum of care, and actions that may result from the assessment. A thorough explanation of findings, implications, and limitations in the assessment process is important. Making specific recommendations for intervention and following up on cases is critical.

Avoiding overidentification of individuals as “dangerous” while attempting to minimize risks of harm to others is a complex and difficult task. The fact remains that the ability of psychologists to “predict” violence, particularly among youth, is poor (Menzies & Webster, 1995). There is a great temptation after a tragic event such as a school shooting to believe that people should have “seen it coming” (Becker, 1998, April 26). As the troubled lives of assailants and their histories of attack-related behaviors are made public, many believe that the attacks could have been predicted (Anton, 1999, May 2). This represents overconfidence (Johnson, 1999). Many young people display risk factors at one time or another (Dwyer et al., 1998). There are no reliable formulas for determining how many risk factors or which ones are most important in determining whether a particular youth will become violent. When a “profiling approach” is used as the sole basis for decision making, there is a great likelihood of overidentification. It may be that this can be minimized through the use of a multifaceted, clinical-empirical approach to assessment along with risk communications that are descriptive, categorical, and prescriptive.

Future Research Needs

There is a great need for additional research that will lead to better understanding of risk factors for serious youth violence, development of risk assessment tools, and effective intervention programs. More studies are needed that focus on risk factors for specific forms of youth violence and on protective factors for children and adolescents. There is a great need to develop assessment tools that can be used to predict future risk of violence, guide placements, and assess intervention needs (Le Blanc, 1998).

Screening devices need to be developed to juveniles at risk for serious violence early in their developmental progression (Loeber & Farrington, 1998). Along with the need to develop screening tools, there is a pressing need for qualitative studies with middle and high school students to explore the reasons why youth in these age groups so often fail to report threats of violence made by their peers. It will be difficult to change this pattern until the reasons for not reporting are understood.

School violence has become more lethal. The school shootings have been tragic for the individuals involved and for society. Successful prevention efforts will require a thorough understanding of causation and the ability to identify those who are most in need of intervention.

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