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9 School Violence

Irvin Sam Schonfeld

A book on workplace violence requires a chapter on school violence. Schools are where teachers *and* children work. One of the goals of the National Educational Goals Panel (2000), an independent agency of the executive branch of the federal government, is the following:

> Every local educational agency will develop and implement a policy to ensure that all schools are free of violence and the unauthorized presence of weapons.

The goal applies to the safety of students, faculty, and staff. The purpose of this chapter is threefold. First, the chapter summarizes what is known about the prevalence of violence and weapons in U.S. schools. Other problematic behaviors that plague schools, including verbally assaultive behavior and drug use, are not addressed. Second, the chapter examines theories that bear on school violence and the empirical evidence linked to those theories. Third, the chapter looks at attempts to prevent school violence and, consequently, the suffering school violence causes.

Prevalence of Violence and Weapons in the Schools

Before reviewing the literature on the prevalence of violence and weapons in schools (in this section I limit prevalence findings to the 1990s and later), it

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is important to note a number of obstacles to accurately ascertaining the occurrence of violence. At the school level, officially recorded crime statistics often undercount crimes because of a lack of candor on the part of administrators doing the counting (Bloch, 1978; Dillon, 1994; Furlong & Morrison, 2000; Schonfeld, 1992). Political pressures, the avoidance of embarrassment, and the administrator's desire to avoid jeopardizing his or her career motivate the lack of candor. Moreover, crime-related surveillance at the school level is rarely audited by external agents (Kingery & Coggeshall, 2001). Kingery and Coggeshall (2001) demonstrated that the states' annual reporting of the numbers of students expelled for carrying firearms to school provides misleadingly low estimates of school-related firearms violations. Reporting problems notwithstanding, during the 1999–2000 academic year, an estimated 71% of public schools, as reported by principals, experienced at least one violent incident, and in 36% of public schools at least one violent incident was reported to police, suggesting that police reports underrepresent the extent of violence in schools. Self-report measures constitute an alternative to official records. Self-report data are not without problems. Studies by Cornell and Loper (1998) and Rosenblatt and Furlong (1997) indicate that students whose self-reports have validity problems (e.g., inconsistent responses) are likely to inflate reports of school-related violence.

Epidemiologic surveys are susceptible to problematic reporting. For example, the Youth Risk Behavior Survey (YRBS; Centers for Disease Control and Prevention [CDCP], 2004) asks students, "During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club on school property?" Although YRBS violence and other items have at least moderate reliability (kappas > .40; Brener et al., 2002), Furlong and Morrison (2000) underline the problematic nature of the above item and items like it. First, the item does not differentiate a student who brings a knife to school with no intention of hurting anyone and a student with intentions to harm. Second, the item does not distinguish bringing a weapon (a) to the grounds outside of school and (b) into the school building. Third, it is not clear from an affirmative answer which type of weapon was involved. Epidemiologic survey items, like the above YRBS item, are often designed for brevity, with each item covering a good deal of information and thus violating a norm of psychometric practice. In a similar vein, the YRBS item asking how often a student was in a physical fight does not distinguish victim from perpetrator. The reader should bear these methodological caveats in mind when considering the published rates of school-associated violence.

Homicide and Suicide

Although there can be problems in tracking and defining them, homicide and suicide are two types of violent events that are counted relatively accurately. Epidemiologic studies of school-associated violent deaths in the 1990s (Anderson et al., 2001; Kachur et al., 1996; see Table 9.1 for key

Table 9.1 School-Associated Homicide and Suicide

Study	*Years Covered*	*Key Findings*
Kachur et al. (1996)	1992–1994	105 school-associated deaths 85 homicides 76 homicides were students 20 student suicides Annualized student mortality rate: 0.09 per 100,000
Anderson et al. (2001)	1994–1999	253 school-associated deaths 172 of whom were students Annualized student mortality rate: 0.068 per 100,000 172 school-associated deaths were single homicides 30 suicides 11 homicide-suicides 5 deaths from legal interventions 2 unintentional gun-related deaths 18 homicides were faculty or staff 12 homicides were members of students' families 30 homicides were community residents 4 homicides were associated with the school in other ways 12 homicides were associated with neither the school nor the community 2 homicides were police officers 3 homicide victims' associations with the school were unknown
DeVoe et al. (2003)	1999–2000	CDCP's School-Associated Violent Death Surveillance System: 16 student homicides, 6 student suicides
	2000–2001 (tentative)	10 student homicides, 5 student suicides
	2001–2002 (tentative)	14 student homicides, 3 student suicides

findings) indicate that homicides and suicides occurring while the victims were in school, on the way to or from school, or traveling to or from or attending off-campus school-related events have been rare. Between 1992 and 1994, 96 students were either homicide or suicide victims. By contrast, during the same period, 6,050 children between 5 and 19 were homicide or suicide victims. Between 1994 and 1999, there were 172 school-associated student deaths. During the same period, 20,541 school-aged children were victims of homicide or suicide. Despite high-profile events in places like Littleton, Colorado, and West Paducah, Kentucky, the findings indicate that for children, school is protective vis-à-vis violent death. School, however, is more protective for some students than for others.

Between 1992 and 1994, 62% of school-related deaths occurred in urban areas and 30%, in suburban areas. Between 1994 and 1999, the figures were

52% and 35%, respectively. During that period, Black students had about five times the risk of becoming homicide victims as White students (the odds ratios were not available for 1992 to 1994); Hispanic students had 3.5 times the risk. Owing to its rarity in schools, no significant ethnic differences for suicide were found. Other findings showed that violent death was extremely rare in the context of elementary school and most frequent in the context of high school. About 48% of the homicides between 1994 and 1999 were related to interpersonal disputes (e.g., romantic entanglements), and about 30% of homicides were gang-related; 46% of homicide perpetrators had a history of criminal charges; 39% were gang members; and 20% had been bullied by peers. Between 1994 and 1999, firearms accounted for 69% of the homicides and 90% of the suicides. Although the rates of school-related violent death are still unacceptable, the data indicate that children are far safer inside schools than out.

Nonfatal Violent Behavior and Weapons-Carrying Among Students: National Samples

This section examines estimates of the prevalence of school violence obtained in studies having large nationally representative samples (n > 4,600 each year in the field; participation rates > 77%). In obtaining estimates of the prevalence of school-related nonfatal violent behavior and weapons possession, the caveats described earlier must be borne in mind. The YRBS (CDCP, 2004) has possibly been the best vehicle for providing national estimates because it has been conducted biennially since 1993. Estimates from other national studies are examined with reference to the YRBS.

The YRBS, using three-stage cluster sampling procedures, produced cross-sectional samples of high school students between 1993 and 2003. The YRBS includes an anonymously administered questionnaire that incorporates consistency checks that allow investigators to discount participants with anomalous responses (Brener et al., 2002). As shown in Table 9.2, estimates of the rates at which students carried a weapon on school property at least once during the 30-day period preceding the completion of the survey declined between 1993 and 2003 from about 12% to 6%. In 2003, males (9%) were three times as likely as females to report carrying a weapon; there were no marked differences in weapons possession by ethnicity or grade. The carrying of weapons, however, was more prevalent outside of school than on school property.

The YRBS inquired into physical fighting on school property in the 12 months prior to completing the survey. The decline between 1993 and 2003 was small, from 16% to 13%. Twice as many males as females acknowledged having been in a fight; compared with White youth (10%), Black (17%) and Hispanic youth (17%) were more likely to report fighting. Fighting declined from 9th (7%) to 12th grade (4%), although the dropping out of the most combative students may partially account for the decline.

Table 9.2 Prevalence of Nonfatal Violent Behavior and Weapons-Carrying Among Students: National Samples

Study	*Years Covered*	*Key Findings*
CDCP (2004)	1993–2003	YRBS data set; 9–12th graders; items cover a 30-day period Weapons-carrying on school property declined from 12% in 1993 to 6% in 2003 In 2003, rate of weapons-carrying outside school was 17% In 2003, 9% of males and 3% of females carried weapons Trend for not going to school because of safety fears was flat between 1993 (4%) and 2003 (5%) The next items covered a 12-month period: Physical fighting on school property declined from 16% in 1993 to 13% in 2003 Physical fighting outside school declined from 42% in 1993 to 33% in 2003 Threatened or injured on school property by someone having a weapon increased from 7% in 1993 to 9% in 2003
Brener et al. (2002)	1999	YRBS applied to a large national convenience sample in retest reliability study; high school students: 5–6% carried weapons to school in last 30 days 5–5.5% felt unsafe in school in the last 30 days 6–7% threatened with or injured by a weapon on school property in last 12 months
DeVoe et al. (2003)	1995–2001	NCVS data set. Annual rates of nonfatal school-associated violent crime in which students 12–18 were victims; time frame is the preceding 6 months: 1995 – 3.0% 1999 – 2.3% 2001 – 1.8%
Bezilla (1993)	1992	Gallup Organization: Ages 13–17, time frame is ever: Ever physically assaulted in school: 7% Had money stolen: 15% Observed fighting in school: 23% Observed weapons in school: 9%
Coggeshall and Kingery (2001)	1997	MTF: 7.7% weapons-carrying among 10th graders over last 4 weeks
	1997	YRBS: 6.8% weapons-carrying among 10th graders over last 30 days
	1995	NCVS: 3.9% of 10th graders brought something for protection over last 6 months
	1997	MTF: 3.9% of 10th graders did not go to school over last 4 weeks out of fear
	1997	YRBS: 4.0% of 10th graders did not go to school over last 30 days out of fear

(Continued)

Table 9.2 (Continued)

Study	*Years Covered*	*Key Findings*
	1995	NCVS: no comparable fear item
Kingery and Coggeshall (2001)	1995	Add Health data: 1.1% of students in Grades 7–12 brought guns to school in the last 30 days; estimated number of gun carriers in schools, given confidence interval, is between 200,000 and 310,000 students
	1998	MTF data on bringing gun to school in last 4 weeks: 3.1% of 8th graders (3.2% in 1997) 3.6% of 10th graders (3.5% in 1997) 2.1% of 12th graders (2.9% in 1997) Estimated number of gun carriers in schools (3 grades combined) is 350,000
Nansel et al. (2003) and personal communication (2004)	1998	Health Behavior of School-Aged Children Survey; Grades 6–10; time frame is the current school term: 10% of respondents were bullied 11% bullied others 4% both

NOTES:

YRBS = Youth Risk Behavior Survey.

MTF = Monitoring the Future Study. Also see O'Malley, Johnston, Bachman, and Schulenberg (2000); Johnston, O'Malley, and Bachman (2001).

NCVS = National Crime Victimization Survey/School Crime Supplement.

Add Health = National Longitudinal Study of Adolescent Health. Also see Resnick et al. (1997); Sieving et al. (2001).

The YRBS data also indicated that considerably more fighting took place outside of school than on school property.

Students also reported on having been threatened or injured on school property by someone holding a weapon in the 12 months prior to completing the survey. The trend from 1993 (7%) to 2003 (9%) was flat. Males were almost twice as likely as females to report having been threatened or injured; ethnic differences were minimal; there was a decline from 9th (12%) to 12th grade (6%). Finally, students' reports of not going to school one or more times in the last 30 days owing to safety concerns were stable between 1993 (4%) and 2003 (5%); males were as likely as females to express this concern; and compared with Whites (3%), Blacks (8%) and Hispanics (9%) were more likely to voice this worry.

A 1999 retest reliability study (Brener et al., 2002) applying the YRBS to a large convenience sample of high school students from 20 states and the District of Columbia obtained prevalence rates for carrying a weapon on school property, feeling unsafe at school, feeling threatened, or having been

injured on school property that were highly comparable with the rates obtained in the 1999 round of the YRBS (CDCP, 2003).

Several other studies (Bezilla, 1993; Coggeshall & Kingery, 2001; DeVoe et al., 2003) of nationally representative samples of school-age youth have been conducted since 1990. Although the items employed in the surveys and the time frames applied to the items were not exactly the same as those in the YRBS, the prevalence rates were largely consistent with YRBS findings. For example, Kingery and Coggeshall (2001), employing public-use data files, found that the items in the Monitoring the Future (Johnston, O'Malley, & Bachman, 2001; O'Malley, Johnston, Bachman, & Schulenberg, 2000) data set pertaining to weapons-carrying and fear of victimization, items that were worded similarly to YRBS items, yielded prevalence rates similar to the rates obtained in the YRBS conducted the same year.

A problem related to school violence is bullying. Frequent fighting, being injured in a fight, and carrying weapons to school are associated with bullying and being bullied in (or away from) school (Nansel, Craig, Overpeck, Saluja, & Ruan, 2004; Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). *Bullying* involves aggressive behavior with intent to harm that is carried out repeatedly by one or more students who are more powerful than the victim (Olweus, 1999). Bullying includes physical and/or verbal aggression (e.g., belittling). Nansel and her colleagues found that within U.S. schools, about one tenth of all students engaged in bullying and an equal proportion were bullied (personal communication, Sept. 3, 2004).

Nonfatal Violent Behavior and Weapons Carrying Among Students: Regional Samples

In order to look more closely at the rates of student violence, I examined studies having (a) large representative samples of students ($n > 900$) living in specific geographic areas and (b) high completion rates (> 70%). As shown in Table 9.3, the rates of nonfatal violent behavior and weapons-carrying in regional studies, with one exception (Cornell & Loper, 1998), tend to be higher than the rates found in national samples. Table 9.3 indicates that the rates of weapon-carrying and violent behavior in South Carolina (Valois & McKeown, 1998; Valois, Vincent, McKeown, Garrison, & Kirby, 1993), Los Angeles (O'Keefe, 1997), and Texas (Orpinas, Basen-Engquist, Grunbaum, & Parcel, 1995; Orpinas, Murray, & Kelder, 1999) are striking. The studies, however, may overestimate the rates. For example, the weapon of choice in the South Carolina studies (Valois & McKeown, 1998; Valois et al., 1993) was the knife; it, therefore, would have been helpful if the investigators had differentiated more dangerous knives, such as switchblades, from penknives.

Conducting what was perhaps the methodologically soundest study, Cornell and Loper (1998) examined a large representative sample of

Table 9.3 Prevalence of Nonfatal Violent Behavior and Weapons-Carrying Among Students: Regional Samples

Study	*Years Covered*	*Key Findings*
Valois et al. (1993)	1990	YRBS instrument; 9–12th graders in South Carolina; items cover a 30-day period: Weapons-carrying in school: White males, 40%; White females, 11%; Black males, 36%; Black females, 14%
Valois and McKeown (1998)	1992	YRBS instrument; 9–12th graders in South Carolina; items cover a 30-day period: Weapons-carrying anywhere: White males, 54%; White females, 9%; Black males, 38%; Black females, 16%
O'Keefe (1997)	Not clear	Modified version of Physical Aggression subscale of the Conflict Tactics scales; items cover 1 year: Mainly 11–12th graders attending 6 inner-city Los Angeles high schools: 85% of males and 78% of females observed someone in school getting beaten up 62% of males and 46% of females witnessed someone in school being threatened by another person holding a gun or knife 49% of males and 40% of females observed a stabbing in school
Cleary (2000)	1997	YRBS instrument; 9–12th graders in New York State but outside New York City: 21% of students were victimized at school in any or all of the following ways: feeling unsafe in the last 30 days, having been threatened or injured in the last year, having property vandalized or stolen in the last year
Orpinas et al. (1995)	1991	YRBS items; 9th and 11th graders in a predominantly White Texas school district; time frame was 30 days: 20% of students had been in a fight anywhere 10% had carried a weapon anywhere 17% had been in a fight and carried a weapon anywhere
Orpinas et al. (1999)	1994	YRBS items; 7th, 8th, and 9th graders in urban Texas school district; time frame was 30 days: 23% of students had been in a fight on school property, including 28% of the boys and 17% of the girls; 23% Hispanic youth, 24% Black, 17% White, and 18% Asian
Cornell and Loper (1998)	1995	School Safety Survey; 7th, 9th, and 11th graders in all middle and high schools in suburban Virginia school district (62% White; 28% of middle and 13% of high school students registered for free or reduced-price lunch); items cover a 30-day period; items below are associated with school: 8% carried a knife 6% carried a gun 19% involved in physical fight (24% of 7th graders; 13.5% of 9th graders; 11% of 11th graders)

students in a suburban Virginia school district. Survey items were factually oriented (e.g., carrying a gun to school to protect oneself; carrying a knife to school to protect oneself) and contemporaneous (the items cover the 30 days antedating the survey). The survey included validity checks (e.g., the negative endorsement of an item such as "I am reading this survey carefully") and the identification of surveys in which the unlikely event that six high-risk behaviors (carrying a gun, knife, and other weapons) were admitted to. Eight percent of the students carried a knife, 6% carried a gun, and 19% were involved in a physical fight. Fighting was more common among boys. The prevalence of fighting declined from 7th to 11th grade. There was also substantial overlap in the tendency to carry weapons and fight in school and out.

Although it would be unwise to average rates from studies using different methods across different time periods, the preponderance of evidence from the above studies indicates that, nationally and regionally, a substantial number of students carry weapons on school property (e.g., 5% carrying any weapon over a 30-day period in 2003 in the YRBS; 6% carrying a gun over a 30-day period in the Cornell and Loper study; slightly lower rates in the MTF and Add Health studies in Table 9.2). Fighting on school property among students is cause for concern (e.g., 13% of high school students in 2003 over the course of a year in the YRBS; 19% of middle and high school students over 30 days in the Cornell and Loper study). The rates were highest in middle school (Cornell & Loper, 1998; Orpinas et al., 1999). The prevalence of threats or injury on school property (9% in 2003 over a school year in the YRBS) is also cause for concern. Although there is evidence that the rates of exposure to violence can be very high in inner-city schools (e.g., O'Keefe, 1997), the problem of school-related violence and weapons possession transcends geography: School violence is a national problem. The combination of weapons, fighting, and victimization at school constitutes a public health threat.

Teachers and Staff

Bloch (1978) observed more than 250 Los Angeles teachers referred for psychiatric evaluation who showed symptoms of "combat neurosis." The teachers reported that their classes often contained a high proportion of violence-prone students. Studies of unselected samples, however, better put into perspective the relation of teaching to violence (see Table 9.4 for a summary of the findings). Anderson et al. (2001) found that between 1994 and 1999, 18 faculty *and* staff were murdered (see Table 9.1), averaging 3.6 homicides per year. According to the National Center for Education Statistics (NCES; 2004), there were approximately 3,071,000 teachers in the United States in 1996, the midpoint of that period. If one conservatively counts all the above homicide victims as teachers, then the yearly homicide rate would be approximately 0.12 per 100,000. In 1996, there were 927 job-associated homicides in the United States (Bureau of Labor Statistics, 2004a). In January 1996, an estimated 132,616,000 Americans were in the

Table 9.4 Prevalence of Violent Behavior With Teachers as Victims

Study	*Years Covered*	*Key Findings*
Bureau of Labor Statistics (2004a)	1994–1999	Nationally, 3.6 homicides per year in which teachers and staff were victims 0.12 homicides per 100,000 teachers per year (est. by author) 0.70 homicides per 100,000 workers per year (est. by author)
DeVoe et al. (2003)	1997–2001	Nationally, teachers were victims of 1.3 million nonfatal crimes, including theft, battery, and rape
Peek-Asa et al. (1997)	1994–1995 (4-month period)	California: 269.7 violent workplace injuries per 100,000 teachers; 518 violent workplace injuries per 100,000 school bus drivers; 72.9 to 82.5 violent workplace injuries per 100,000 workers (all covered CA workers)
LaMar et al., (1998)	1992	Minnesota: 70 injury assaults per 100,000 (compensated injury assault rate in the field of education); 47 injury assaults per 100,000 workers (all covered MN workers)
Islam et al. (2003)	1997–1999	West Virginia: 104.6 assault-related injuries per 1,000 injuries among teachers; The state average = 13.5 assault-related injuries per 1,000 injuries
Hashemi and Webster (1998)	1993–1996	Database of 28,000 workers' compensation claims from 51 jurisdictions: 11.4% of school-related claims were violence-related, highest of all economic sectors (Above fraction was probably an underestimate because the "education" category included college professors and college administrators); 74% of claims were filed by women; In random sample of teacher claims, *all* injuries were student perpetrated
Williams et al. (1989)	1985	Texas school district; 90 of 263 teachers participated; 34% completion rate; items cover the present school year: Rate of theft = 24%; 8% if one, conservatively, places *all* 263 teachers in the denominator; Rate of threats = 51%; 17.5% if one places *all* 263 teachers in the denominator
Chang et al. (2003)	1996–1999	National MTF sample of high school seniors: Self-reported rates of hitting a teacher or supervisor in last 12 months = 1.7 and 1.9% Likely underestimate because students who dropped out likely included violent youth
Meyer (2004) personal communication	2003	National MTF sample of high school seniors: Self-reported rates of hitting a teacher or supervisor = 3.2%; Likely underestimate—see above

Study	*Years Covered*	*Key Findings*
MetLife (1999)	1998	National sample but completion rate = 20%; items refer to "ever": Rates of victimization in urban teachers = 19% (14% in 1993); Rates of victimization in suburban and rural teachers = 14% (10% in 1993); Findings similar to 1993 MetLife survey

NOTES:

MTF = Monitoring the Future Study
Also see O'Malley, Johnston, Bachman, and Schulenberg (2000); Johnston, O'Malley, and Bachman (2001).

labor force (Bureau of Labor Statistics, 2004b). Thus the estimated annual job-associated homicide rate was 0.70 per 100,000, considerably higher than that of teachers. Although one work-associated murder is too many, teachers were relatively safer than the average worker.

Using data from a national survey, the U.S. Department of Justice estimated that between 1997 and 2001, teachers were victims of more than 1.3 million nonfatal crimes, ranging from theft to battery to rape (DeVoe et al., 2003). The estimated rate of violent victimization was 21 violent crimes per 1,000 teachers per year, with urban, male, and middle and high school teachers more than twice as likely to be victimized as their suburban or rural, female, and elementary school counterparts.

Other evidence indicates that individuals employed in the education field are relatively vulnerable to assault. Studies of workers' compensation claims and employer injury reports (Hashemi & Webster, 1998; Islam, Edla, Mujuru, Doyle, & Ducatman, 2003; LaMar, Gerberich, Lohman, & Zaidman, 1998; Peek-Asa, Howard, Vargas, & Kraus, 1997) indicate that individuals in the field of education have been assaulted at higher rates than members of most other occupational groups. California workplace injury data collected over 4 consecutive months yielded annualized rates of workplace violence–related injuries (Peek-Asa et al., 1997). The rate for teachers was 269.7 per 100,000, more than three times the state average for all workers. The rate for school bus drivers was 518 per 100,000, more than six times the state average. Students perpetrated more than 80% of the assaults in schools and on school buses. In Minnesota in 1992, the compensated injury assault rate for individuals in the education field was 70 per 100,000, 50% higher than the state average (LaMar et al., 1998). The assailants were overwhelmingly students.

In a West Virginia compensation study covering the years 1997 to 1999, Islam et al. (2003) estimated the proportion of all compensated workplace injuries that resulted from assault. (The authors could not obtain denominators representing the numbers of individuals working in each economic sector in the state work force.) The ratio of the proportion of sector-related compensated injuries that resulted from violence to the statewide proportion served as a

proxy for job-related assault risk. Islam et al. found that teachers experienced 104.6 assault-related injuries per 1,000 injuries, almost eight times the state average. Hashemi and Webster (1998) examined more than 28,000 workers compensation claims occurring over 4 years in 51 jurisdictions. Although they too could not obtain denominator information, Hashemi and Webster were able to calculate the proportion of claims that were violence-related. Consistent with the West Virginia study, more than 11% of school-related claims were violence-related, the highest of the economic sectors studied. A substudy of a random sample of claims revealed that in *every* school-related claim the perpetrator was a student. It should be noted that studies based on workers' compensation are not without limitations: Some occupations are not covered by workers' compensation (e.g., federal employees) and not all victims of workplace assault take advantage of worker compensation.

Three other studies found in Table 9.4 (Chang, Chen, & Brownson, 2003; Metropolitan Life Insurance Company, 1999; P. Meyer, personal communication, August 13, 2004; Williams, Winfree, & Clinton, 1989) also provide estimates of the rates of teacher victimization. Study limitations, however, restrict the applicability of the estimates.

The extant evidence from studies of unselected samples of students and teachers, including worker injury reports, indicates that being a teacher carries an excess risk for becoming a victim of violence. Moreover, the very high rate of assault of school bus drivers (Peek-Asa et al., 1997) is especially troubling. Because the great majority of the drivers' assailants attended school, other students and staff were also at risk. The Bloch (1978) study suggests that just being exposed to threats and witnessing student-on-student fighting without actually being assaulted adversely affects teachers. A study of a representative group of newly appointed women teachers found that difficult school environments adversely affected the teachers' job satisfaction, self-esteem, motivation to remain in the profession, and levels of depressive symptoms (Schonfeld, 2001). It is impossible to disentangle the adverse school environments, however, because they include a combination of physically and verbally assaultive students, academically weak students, and ineffectual administrative leadership.

Theoretical Models of School Violence

Rephrasing commentary by Farrington (1998), there are no specific models of school violence; there are, however, models of child and adolescent aggression and delinquency. The violence in which children and adolescents engage transcends the school-community boundary. The models described here attempt to account for a variety of antisocial conduct, including violence, in school and out. This section briefly examines five model types (see Table 9.5 for a summary of the models) and provides a selective reading of the supporting evidence. The

Table 9.5 Summary of Models That Bear on the Occurrence of School Violence

Model	*Key Features*
Ecological-Contextual	Bronfenbrenner's (1979) Russian dolls model. Environments represent nested structures with processes linking lower- and higher-level environments. Immediate environment the child perceives is nested within a higher-level environment. Activities, roles, etc., that are structured by the context play a role in the development of the child. Neighborhood and school context play roles in the development of youth violence.
Strain	Agnew's (1992) diathesis stress model. Social and other stressors affect child, provoking anger. Anger mediates the relation of the stressor to delinquent activity. Social (supportive others) and personal (mastery) resources mitigate the impact of stressors on anger/delinquency.
Control Theory	According to Hirschi (1969), when the "individual's bond to society is weak or broken" delinquent risk increases. Attachments to parents and schools are important for internalizing conventional norms. Attachments to peers do not play a large role.
Bandura's Social Learning Theory	Attentional, memory/representational, motoric, and incentive/motivational processes affected by anticipated, vicarious, and actual reinforcement. Much of human behavior, including violent and aggressive behavior, is learned through observation: TV, parents, peers, etc.
Akers's Social Learning Theory	Learning of antisocial conduct through reinforcement à la Skinner and observation à la Bandura. Differential association with antisocial peers contributes to the development of antisocial conduct; peers reinforce and model antisocial conduct.
Patterson's Social Interactional Model	Coercive cycle of interaction involving parent and child. Role of escape conditioning. Child's successful aversive response to parent negatively reinforces the child by allowing the child to escape the parent's aversive directives. The parent is successfully "punished" for attempting to direct the child to turn off the TV and do homework. Generalization of aversive responding to other contexts, including school.
Dodge's Social Cognition Model	Encoding social cues; interpreting those cues; drawing from a repertory of behavioral responses stored in long-term memory; evaluating likely consequences of the accessed responses; selecting and enacting a response.

models include ecological-contextual, strain, control, social learning, and social cognitive models. No single model, however, encompasses all the important risk factors (Loeber, Farrington, Stouthamer-Loeber, Moffitt, & Caspi, 1998).

Ecological-Contextual Model

The ecological-contextual model is associated with Urie Bronfenbrenner (1979) although it dates to the work of Kurt Lewin (1935). According to the model, the individual develops within a context of "nested ecological structures" such that the immediate environment the child perceives is embedded within a larger environment such as the home or the classroom, which in turn is embedded within yet a larger environment such as the neighborhood or the school. The contexts within this hierarchy are interrelated. The child progressively accommodates the contexts within which he or she develops. The activities, roles, and interpersonal relations within contexts play parts in human development. Role transitions contribute to developmental change. A distal context exerts effects on the contexts nested within it, until the most proximal context to affect the child is reached. The studies outlined below provide a glimpse into the effects of biological, community, family, and school contexts as they pertain to violence and aggression.

One context that is an addition to the original ecological model is that of the individual's biology (Bronfenbrenner, 2005; Bronfenbrenner & Ceci, 1994). Although the evidence with regard to the contribution of genes to antisocial conduct is not unambiguous (Gottfredson & Hirschi, 1990), biological factors (Raine, 2002) constitute a context that is likely to come into play, particularly with respect to how biological factors interact with the child's social environment. Raine (1993) found that violent youth tend to manifest low resting heart rates, reflecting low levels of autonomic arousal, which in turn may precipitate sensation seeking and concomitant rule breaking. Moffitt (1990) found that delinquent boys with early problematic motor skills, low IQ before the age of 5, attentional deficits, and reading difficulties at school age were more persistently antisocial and had poorer prognoses than other children, including other delinquents without these neuropsychological problems. In her Dunedin, New Zealand, sample, early attentional deficits interacted with family adversity to predict antisocial conduct at age 11. Pine, Shaffer, Schonfeld, and Davies (1997) found that minor physical anomalies, thought to be markers of neural maldevelopment in the fetus, interacted with environmental disadvantage to predict conduct problems in boys at age 17.

The intensity of antisocial activity in the community in which a school is located is directly related to the extent of antisocial conduct occurring inside the school (Bowen & Bowen, 1999; Campbell & Schwarz, 1996; Cornell & Loper, 1998; Evans, 2004; Gottfredson & Gottfredson, 1985; O'Keefe, 1997; Rutter, 1980). A set of studies (Sampson & Groves, 1989; Stouthamer-Loeber,

Loeber, Wei, Farrington, & Wikström, 2002; Wilson, 1987) indicates that neighborhood contextual factors influence violence in the community that in turn carries over into schools. Community contextual factors include joblessness and disorganization (Wilson, 1987); proximity of informal adult friendship networks, extent of adult participation in voluntary groups, and extent of supervision of teenage groups (Sampson & Groves, 1989); and low-income public housing, which has both a main effect and an interactive effect that can amplify the influence of other risk factors on antisocial conduct in boys (Stouthamer-Loeber et al., 2002). Contextual factors such as low socioeconomic standing (SES) and family stressors (e.g., death of a loved one) set the stage for harsh discipline and physical punishment that in turn influence childhood aggression that carries over into schools (Lansford, Deater-Deckard, Dodge, Bates, & Pettit, 2004; Pettit, Clawson, Dodge, & Bates, 1996).

The context of the school has an important connection to the development of aggression. Schools with metal detectors, security guards, and so forth tend to experience more violence (Mayer & Leone, 1999). The presence of security procedures, however, is more likely to be a consequence of school violence than its cause. Arcus (2002) found an association between school shootings and a policy supporting corporal punishment in the state within which the school is located; the association, however, reflected an ecological correlation (Robinson, 1950). An ecological correlation is a correlation between averages obtained from groups of people (e.g., school districts, states) and therefore reveals little about whether shooters had been exposed to corporal punishment.

Some studies examined the relation of school climate and the prevailing zeitgeist of the school to violence. Using a national sample, Mayer and Leone (1999) found that the amount of consistency in rule enforcement in schools was related to lower levels of school disorder. In large Arab and Jewish Israeli samples ranging from Grade 4 to high school, school climate, as reflected in teacher support and prosocial school policies, predicted extent of in-school victimization (Astor, Benbenishty, Zeira, & Vinokur, 2002; Benbenishty, Astor, Zeira, & Vinokur, 2002). The classroom context exerts similar effects. Aggressive first-grade boys placed in classes marked by high aggression are more likely than comparable first graders placed in classes marked by lower levels of aggression to be persistently aggressive in middle school (Kellam, Ling, Merisca, Brown, & Ialongo, 1998).

Schools having as a background characteristic ongoing "low-level" aggression (e.g., hitting and pushing) provide a context that sets the stage for more aggression (Boxer, Edwards-Leeper, Goldstein, Musher-Eizenman, & Dubow, 2003). Although the data are cross-sectional, Boxer et al. (2003) found that students with greater exposure to low-level aggression (e.g., witnessing it or having been victimized) were more likely to engage in aggressive behavior. Felson, Liska, South, and McNulty (1994) took advantage of longitudinal data collected in 87 high schools and conducted perhaps the best study of the influence of school-level zeitgeist on violence. Felson et al. found

that school-level values regarding violence directly influenced interpersonal school violence, adjusting for the individual's commitment to such values.

In some respects the ecological-contextual model is a metamodel. Although Bronfenbrenner (1979) underlined the importance of processes connecting a subcontext to a larger context and the processes connecting the immediate context to the behavior of the individual, the processes themselves are more likely the subject of other theoretical models. Nonetheless, the ecological model emphasizes that schools, which are embedded in communities, accommodate those surroundings for better or for worse. School and classroom contexts in turn influence aggressive behavior in individual children.

The Strain Model

General strain theory is associated with Robert Agnew (1992), although its origins date to the work of Robert Merton (1938). Agnew posited three types of strain or adversity in the individual's social environment: (a) the prevention of the individual "from achieving positively valued goals," (b) the withdrawal or threatened withdrawal of objects the individual values, and (c) the introduction or threatened introduction of "noxious or negatively valued stimuli." The first category of strain includes the disjunction between aspirations and actual achievement in everyday life and the absence of fairness, equity, or respect in everyday interactions. The second category includes the loss or anticipated loss of boyfriend or girlfriend, the death of someone important, and parental separation. The third includes such events as criminal victimization, corporal punishment, parent or teacher criticism, and school failure. An encounter with these types of adversity increases the likelihood that the individual will experience a negative emotion, although anger is "the critical emotional reaction" in strain theory. Anger is disinhibiting. It builds a desire for revenge and supplies the emotional arousal required to fuel action; it ignites aggression. Although an antisocial response to strain can be instrumental (e.g., attempt to regain what one lost) or retaliatory, another response to strain is escapist, with the individual turning to drugs to tamp down disagreeable mood states that strain precipitates (Paternoster & Mazerolle, 1994).

Because only a subgroup of strained individuals resorts to violence and delinquency, the theory includes cognitive, emotional, and behavioral coping strategies that mitigate the impact of strain. Other mitigating factors include personal (e.g., intelligence and mastery) and social resources (e.g., supportive others). Contextual factors, such as the social environment's emphasis on money and status or the nature of the social group to whom the individual's failings are visible, can influence the adolescent's response to strain in the direction of violence. Temperamental factors, learning history, and belief system also play a role in shaping the individual's response to strain. Strain theory has accrued a degree of support.

Agnew and White (1992), Paternoster and Mazerolle (1994), and Brezina (1996) provided partial support for the strain model. Using the first wave of a longitudinal study of New Jersey adolescents, Agnew and White found that strain, reflected in stressful life events (SLEs) and "hassles," was cross-sectionally related to a measure of delinquency that included violence in and out of school. In a longitudinal analysis that controlled for Time-1 delinquency and other confounding factors, Time-1 strain predicted delinquency 3 years later.

Using longitudinal data from a national survey of 11- to 17-year-olds, Paternoster and Mazerolle found that Time-1 strain, controlling for Time-1 delinquency, predicted delinquency 1 year later. Delinquency included violence in school such as hitting a teacher. Other analyses were unsupportive of the view that selected factors buffered (e.g., self-efficacy) or amplified (e.g., delinquent peers) the impact of strain on delinquency. In an analysis of multiwave data on male public high school students, Brezina (1996) found that strain—as reflected in parental punitiveness, "mean teachers," and dissatisfaction with school—predicted negative emotions (i.e., anger, resentment, anxiety, and depression) 1 year later, controlling for Time-1 emotions. Brezina also found that delinquency, which included violence in and out of school, buffered the impact of early strain on later anger; the interaction was specific to anger and did not exert comparable effects on other emotions.

Additional partial support for the strain model comes from longitudinal studies by Hoffmann and Cerbone (1999) and Agnew, Brezina, Wright, and Cullen (2002) and cross-sectional studies by Natvig, Albrektsen, and Qvarnstrøm (2001) and Rosario, Salzinger, Feldman, and Ng-Mak (2003). In a 4-year, four-wave study of participants who were initially ages 11 to 14, Hoffmann and Cerbone (1999) found that the accumulation of SLEs over time predicted "growth" in delinquency, which included violence in and out of school, although there was little evidence that hypothesized moderators (e.g., mastery) reduced the influence of life events on delinquency. Using longitudinal data collected on children who were initially between the ages of 7 and 11, Agnew et al. (2002) found that early family and neighborhood strain and a measure obtained independently from parents bearing on the extent to which they lost control and hurt their child influenced delinquency (which included seriously hurting someone anywhere) 5 years later, adjusting for prior conduct.

Using a Norwegian sample of 13- to 15-year-olds, Natvig et al. (2001) found that school stressors were related to increased risk of bullying behavior, and the supportiveness of teachers and peers was related to decreased risk. Rosario et al. (2003) found that in a sample of Hispanic and Black New York City sixth graders, witnessing community violence or having been victimized was related to elevated levels of delinquency (which included fighting anywhere and hitting teachers). Some types of support from others (guardians for girls in the case of victimization; peers for boys in the case of witnessing) buffered the impact of such exposures on delinquency.

Strain theory is familiar to stress researchers because strain theory posits a diathesis-stress model. In stress research, investigators seek to identify uncontrollable SLEs or job conditions that affect outcomes, such as job satisfaction, depressive symptoms, and blood pressure. Personality (e.g., mastery, negative affectivity) and social variables (e.g., support from others) are hypothesized to mitigate or amplify the impact of the stressors. Alternative models assess the effects personality and social variables exert on outcomes independently of the effects of stressors. Thus Agnew's strain model should appeal to stress researchers because of the similarity in paradigm.

Control Theory

Although control theory is associated with Travis Hirschi (1969), its origins can be traced to the work of Emiles Durkheim (1897/1979). According to Hirschi, acts of delinquency are more likely when the "individual's bond to society is weak or broken" (p. 16). Social bonds underlie the internalization of norms and conscience. Delinquency includes violence and other kinds of antisocial conduct in school and out. The theory emphasizes that the weakening of attachments to conventional others is more important to the development of antisocial conduct than are bonds to delinquent peers. The bond itself comprises four elements: attachment in the form of affectional ties to others, particularly parents and school; commitment to conventional endeavors such as schoolwork and a job; involvement in conventional activities such as extracurriculars, studying, and family; and belief in the values of conventional society.

Gottfredson and Hirschi (1990) later built on the above model, developing a theory in which self-control, a key factor in thwarting the development of crime and delinquency, emerges out of socialization and attachment processes (e.g., parental caring). A problematic aspect of the newer theory is the tautological relation between lack of self-control and the variables such a lack explains (e.g., delinquency and drug use; see Akers, 2000). By contrast, "explanations of deviant behavior based on attachment do not beg the question, since the extent to which a person is attached to others can be measured independently of his deviant behavior" (Hirschi, 1969, p. 19).

Hirschi's (1969) cross-sectional findings involving boys attending public junior and senior high schools in northern California were largely consistent with control theory. Extent of the boys' attachment to their parents, regardless of class and race, was inversely related to delinquency, which included violence in and out of school. The extent of the boys' attachment to their fathers, regardless of the boys' attachment to delinquent friends, was inversely related to delinquency. Hirschi also observed that "the idea that delinquents have comparatively warm, intimate social relations with each other (or with anyone) is a romantic myth" (p. 159).

Hirschi and Hindelang (1977) advanced the view that the well-established, inverse relation between IQ and self-reported and official delinquency is

mediated by the effect of IQ on "school performance and adjustment." Hirschi (1969) found that attachment to school and concern about teachers' opinions were inversely related to delinquent behavior. Likewise, attachment to conventional peers was inversely related to delinquency.

A good deal of other cross-sectional research has provided evidence consistent with the social control model (Cretacci, 2003; Kerres Malecki & Demaray, 2003; Minden, Henry, Tolan, & Gorman-Smith, 2000; Resnick et al., 1997; Schreck & Fisher, 2004). Using the Add Health data set, Cretacci (2003) found that in middle and late adolescence, but not early adolescence, attachment to school was related to lower levels of violence; in late adolescence, but not earlier, commitment to school was related to lower levels of violence. In attempting to extend control theory to religion, he found no link between either the student's commitment to religion or parental attachment to religion and adolescent violence. In a study of a largely Hispanic, Illinois middle school sample, Kerres Malecki and Demaray (2003) found that choosing not to carry a weapon to school was highly related to teacher support and, to a lesser extent, the supportiveness of parents, classmates, and close friends. Minden et al. (2000) found that school violence in another largely Hispanic Illinois sample of inner-city fifth and seventh graders was inversely related to the extent to which the adults and peers who knew the student (i.e., the members of the student's adult and peer networks) knew one another (i.e., boundary density). School violence was inversely related to the extent of the students' cumulative involvement in conventional activities such as school, church, and athletics.

Using the Add Health data set, Resnick et al. (1997) found that connectedness to family and school was inversely related to health risk behaviors, including fighting and hurting others regardless of location (also see NCES, 2000; Bonny, Britto, Klostermann, Hornung, & Slap, 2000). Schreck and Fisher (2004) conducted one of the few studies that link social ties to victimization. Using the Add Health data set, they found that parents' nurturing feelings for the child and a family climate variable that reflected the child's positive feelings for his or her family were related to lower risk of violent victimization in or out of school. Two protective processes may underlie the findings: (a) strong ties in parents promote more effective guardianship; and (b) strong ties in the child reduce his or her willingness to take risks.

Two longitudinal studies (Borowsky, Ireland, & Resnick, 2002, and Wiesner & Windle, 2004) support the view that social ties protect the individual from engaging in violence. Borowsky et al. (2002) found that among 11th-grade Add Health boys and girls who had ever repeated a grade (these students are at higher risk for engaging in violent behavior), parent and school connectedness in the 11th grade predicted reduced risk of serious violence in or out of school during the 12th, although multivariate analyses did not control for 11th-grade violence and victimization. Wiesner and Windle (2004), using data collected over a 2-year period in a mainly White, middle-class western New York sample of high school students, found that lack of family support

at Time 1 was related to the later delinquent behavior including violence (e.g., hitting a teacher) as were (consistent with strain theory) Time-1 SLEs.

Sampson and Laub (1993) integrated and recast an enormous amount of data that Sheldon and Eleanor Glueck (1950) collected earlier on 1,000 White, Boston-area boys. Multivariate analyses bearing on the cross-sectional and case-control components of the study revealed that number of delinquent acts (which included teacher-reported cruelty) were associated with early temperamental difficulties (e.g., tantrums); parents' use of harsh, erratic discipline; parental rejection; poor maternal supervision (e.g., leaving the boy on his own without care); crowding at home; disconnectedness from school; and attachment to delinquent peers.

Sampson and Laub took Hirschi's original theory as a point of departure by mapping out a network of causal factors that come to the fore and recede at different points in the life course. Different sorts of social bonds exert informal control over the individual, and their presence or absence play a role in the prevention or onset of, or desistance from, delinquency and crime. Moreover, their findings also suggest that antisocial conduct undermines social ties.

Social Learning Models

Theories of social learning (SL) are associated with Albert Bandura and Ronald Akers. Bandura's (1977, 1983) model of observational learning encompasses four interrelated processes: attentional, memory/representational, motoric, and incentive/motivational processes. *Attentional processes* refer to the regulation of perception. *Representational processes* concern the encoding in memory of enduring symbols—verbal or iconic—of what was observed. *Motoric processes* concern the transformation into behavior of mental representations of what was observed. *Motivational processes* manage observationally learned behavior; these processes include the actual and anticipated reinforcement of the individual, as well as models, and include tangible and intangible (e.g., status) rewards. Because a good deal of human behavior is learned by observation, it is a corollary that aggressive behavior is observationally learned. According to Bandura's theory, with the learning that occurs over time, the child increasingly becomes a psychologically self-regulating individual, developing internal standards against which to judge his or her own behavior. Such a self-system can be particularly troubling if the individual's internal standards are ones that value aggression.

Akers's (2000; Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979) version of SL theory holds that children and adolescents learn antisocial behavior through differential reinforcement—à la B. F. Skinner—as well as through elements of Bandura's more cognitive, observational learning. A feature of Akers's (2000; Akers et al., 1979) model is that of differential association, which refers to the extent children become exposed to reference

individuals who define, reinforce, and model antisocial or conforming behavior. Association with antisocial peers precedes and paves the way for the individual's becoming engaged in antisocial conduct. A parallel process is thought to underlie conforming behavior. The view of Akers contrasts with that of Hirschi (1969) regarding the role of the peer group in socializing the child.

Gerald Patterson's (1982, 1995) social interactional model is a more behavioristic and less cognitive SL theory than the models associated with Bandura and Akers. At the core of Patterson's theory is the concept of *coercion,* which involves the individual's application and counterapplication of aversive behaviors contingent on target behaviors in another person. Aversive behaviors are ordinarily punishing; in the Skinnerian model, a punishment causes a target behavior to occur less frequently. Patterson identified many aversive behaviors in the parent-child relationship, for example, hitting, yelling, and whining. Sometimes a child resists a mother who attempts to coerce the child into performing certain behaviors (e.g., shutting off the TV and beginning a homework assignment). If the child successfully uses aversive means (e.g., by hitting or screaming) to escape the mother's intrusions, the child learns to apply such behaviors at home and then elsewhere, including the school.

Consistent with SL theory, investigators have documented the impact of exposure to violent television programs (Bushman & Huesmann, 2001; Paik & Comstock, 1994) and, to a lesser extent, violent video games (Anderson & Bushman, 2001) on childhood violence. SL theory also holds that children learn from live models they observe. Considerable research has linked exposure to physical punishment by parents to aggressive behavior in children (e.g., Sampson & Laub, 1993; Straus, 1991). Exemplary research involving a large, diverse urban sample that was followed longitudinally revealed that the extent to which first through third graders initially witnessed violence in their communities was related to aggression, as reflected by the judgments of classmates and teachers, in Grades 4 through 6, controlling for initial aggression (Guerra, Huesmann, & Spindler, 2003). The effects of exposure to community violence on later aggression also affected the extent to which the children cognized about aggression, analyses suggesting that children's cognitions mediate the relation of early exposure to later aggression.

There is evidence supporting Akers's view regarding the influence of peers on an individual's propensity to engage in antisocial conduct, although there is some support for the view that similarity in attributes such as minor delinquency precedes friendship pairing and guides such pairing (Kandel, 1978). Wright, Caspi, Moffitt, and Silva (2001) found that children with low self-control (a construct that includes antisocial conduct) through age 11 become more antisocial in adolescence to the extent that they are exposed to delinquent peers. In addition, Rosario et al. (2003) found that high levels of support from peers amplified antisocial responding in male and female Black and Hispanic sixth graders who were victimized.

Consistent with the social interactional model, evidence from the Oregon Youth Study (OYS), a longitudinal study of fourth-grade White boys, indicated that inept parental disciplining and poor parental monitoring were related to the early onset of boys' antisocial conduct (Patterson, Capaldi, & Bank, 1991; Patterson & Yoerger, 1997). OYS data indicated a bidirectional relation between steadily increasing antisocial conduct and increased hesitancy in parents to exert control. Patterson et al. found that early antisocial behavior paves the way for affiliation with deviant peers in school and elsewhere. Dishion, Andrews, and Crosby (1995) found that antisocial boys' interactions with friends were often of low quality, somewhat less durable, and fraught with coercion and bossiness. Dishion, Patterson, and Griesler (1994) also found that even the most difficult children have at least one reciprocating friend based on common-ground activities, such as rule breaking, and that conversations within such friendships were more deviant than were those of comparison boys.

The SL and social interaction research programs allow investigators to get close to the actual transactions that take place in the lives of children in order to identify the behavioral and psychological processes that lead children to violence and other forms of antisocial conduct. The SL and social interaction research programs underline the role of mechanisms of learning and cognition that have been well established in the field of psychology in elucidating the processes by which children, in their *immediate* social environments, learn to engage in violent behavior.

Social Information Processing Models

Social information processing (SIP) models underline the role children's cognitions play in the development of aggressive behavior. In this section, I focus on the SIP-related research of Kenneth Dodge and his colleagues. The model represents an extension of historically important basic research in cognitive psychology (Miller, Galanter, & Pribram, 1961; Neisser, 1967) into consequential new domains. The SIP model advanced by Dodge, Pettit, McClaskey, and Brown (1986) posits a sequence of cognitive activities in which individuals engage in social situations. First, the individual encodes social cues and then interprets those cues. Next, the individual draws from a repertory of behavioral responses stored in long-term memory (LTM) and then evaluates the likely consequences of the accessed responses. Finally, the individual selects and enacts a response. Aggressive children process information differently from their nonaggressive peers. Aggressive children manifest problems encoding relevant social cues; they show biases in the direction of interpreting others' intentions as reflecting hostility when the intentions are unclear; compared with peers, they have stored in LTM fewer competent, prosocial responses and more aggressive responses; aggressive children are more disposed to retrieve aggressive responses from LTM; and

they are more likely to evaluate favorably anticipated consequences of aggressive actions (Dodge et al., 1986).

Dodge et al. (1986) compared the social cognitions of highly aggressive, socially rejected second through fourth graders and nonaggressive "average" peers. In laboratory tasks, the aggressive children were not as competent as the control children in SIP, notably in the number of antisocial responses they generated and their propensity to enact aggressive responses. In the classroom, the aggressive children were more antisocial and disruptive and were more ignored by classmates, although this is not surprising given that teachers helped select the children. The competency of the children in a staged peer-group entry task was judged by adult observers and two peer confederates. Success at the entry task was related to SIP variables, including self-monitoring and number of prosocial solutions generated to questions. Responses in a live peer-group provocation situation were also related to SIP variables, including endorsing aggressive responses and making hostile attributions.

Dodge, Lochman, Harnish, Bates, and Pettit (1997) assessed the SIP capabilities in reactively and proactively aggressive children and nonaggressive peers entering the third grade. Reactively aggressive children were at higher risk for having experienced harsh physical punishment; consistent with this finding, the reactively aggressive children showed more problems encoding social cues. Proactively aggressive children were more likely to anticipate positive consequences for aggressive responses. Dodge et al. (1997) suggested that cognitive factors such as general intelligence could account for the observed differences in SIP. IQ-related differences between aggressive and nonaggressive children have been widely observed (e.g., Hirschi & Hindelang, 1977; Huesmann, Eron, & Yarmel, 1987; Loeber et al., 1998; Schonfeld, Shaffer, O'Connor, & Portnoy, 1988).

Although the above studies indicate that aggressive children think differently from other children, none of the studies demonstrated that deviant SIP plays a causal role in the development of aggressive behavior. Other evidence implicates SIP in the development of aggressive behavior. In a six-month longitudinal study, Weiss, Dodge, Bates, and Pettit (1992) found that Time-1 SIP partly mediated the link between early harsh parental discipline and Time-2, kindergarten aggression, controlling for Time-1 aggression and temperament. In a test of the specificity of the model, Weiss et al. found that SIP did not mediate the link between early harm and Time-2 internalizing. A follow-up of the sample into third and fourth grades suggests that SIP partly mediates the relation of early abuse to later teacher-reported aggression (Dodge, Pettit, Bates, & Valente, 1995).

Like the SL theories of Bandura, Akers, and Patterson, the SIP model of Dodge and his colleagues outlines processes thought to pave the way for the development of aggressive conduct in and out of school. Clues from the studies by Weiss et al. (1992) and Dodge et al. (1995) suggest that harsh parental discipline, a variable well connected to antisocial outcomes as early

as kindergarten, helps shape the biases in SIP that partly contribute to aggressive responding.

A Final Word About Models of School Violence

No one model provides a "complete" explanation of violence in school and elsewhere. The models complement each other and the more atheoretical, "risk factor" approaches to antisocial conduct in youth (Farrington, 1998). One of the leading longitudinal risk factor studies, the Pittsburgh Youth Study (Loeber et al., 1998), identified multiple developmental pathways into aggressive behaviors, as well as sets of child (e.g., behavioral impulsivity, hyperactivity, intelligence, negative emotionality, early onset, lack of guilt, reading difficulties), family (e.g., poor supervision and communication, physical punishment, parental discord), contextual (e.g., welfare dependency, broken home, bad neighborhood), and peer factors (e.g., exposure to deviant peers) that are associated with increased risk of antisocial conduct. Many of these factors have been identified in other studies and have been largely replicated in a longitudinal study conducted in England (Farrington, 1998). It is expected that what is learned from research associated with theoretical, and atheoretical, approaches to youth violence would inform prevention programs.

Preventive Interventions

This section examines public health and school-associated interventions that have been aimed at reducing violence and that have at least 200 participants (in the interest of conserving space, details of each preventive treatment are found in Table 9.6). Few interventions, however, are aimed at violence alone. The interventions are aimed at preventing violence and a variety of other types of antisocial conduct. The section is organized by the ages of the children to whom the interventions apply. The section examines interventions carried out before school entrance and during the elementary school years, the periods when behavioral difficulties frequently emerge (cf. Tremblay, Pagani-Kurtz, Mâsse, Vitaro, & Pihl, 1995) yet are most manageable. The extent of teacher-reported violence in the early grades is highly stable over time (Broidy et al., 2003), making early prevention critically important. The section also addresses the idea of early warning systems that apply to all grade levels but are thought to be most applicable in high school.

Prevention Before Entrance Into School

I briefly note that interventions that occur before the child enters school can affect the likelihood of the child's engaging in antisocial conduct later.

Table 9.6 Summary of Intervention Programs

Authors	*Ages/Grades Implemented*	*Key Components of the Index Intervention*
Olds et al. (1998)	Birth to age 2; poor White families in upstate New York	Nurse made home visits to mothers. Emphasized competent care, health behaviors, and mothers' personal growth (e.g., job preparation). Emphasized the ecology of the home and attachment à la Bowlby (by implication Hirschi) and parent self-efficacy à la Bandura.
Schweinhart et al. (1986a)	Ypsilanti, Michigan, preschool children; 65% were Black	Child-centered curriculum emphasized active learning à la Piaget and social competence training.
Webster-Stratton (1998)	Washington State Head Start children; 63% were White	Trained parents à la Patterson to better supervise children, effectively set limits, and improve the children's social skills and prosocial behaviors. Taught parents to use less harsh discipline.
CPRG (1999a and 1999b)	Diverse 1st graders in 4 impoverished areas in the U.S.	Two components: (a) Component that targeted most at-risk children included tutoring, social cognitive skills training, training of parents to be more effective; and (b) in universal component, teachers followed curriculum for all children; focus on "understanding and communicating emotions," friendship skills, self-control, and social problem solving.
Tremblay et al. (1995)	Disadvantaged, White, French-speaking (Montreal), kindergarten boys	Two-year "bimodal" program consisting of (a) home-based component à la Patterson aimed at helping parents effectively reinforce prosocial behaviors and reduce antisocial behaviors; and (b) a school-based component involving at-risk and normal peers aimed at strengthening prosocial behaviors, social cognitive problem solving, and self-control in the context of conflict situations.
Dolan et al. (1993)	Baltimore 1st graders; 64% were Black	Application of the Good Behavior Game (GBG), which involves the creation of teams comprising aggressive and normal children who compete as groups for contingently awarded reinforcements by enacting prosocial behavior. The GBG increasingly became part of the school day.
Grossman et al. (1997)	Mostly White Seattle area 2nd and 3rd graders	*Second Step* program consisted of 30 lessons in which teachers teach empathy, impulse control, social cognitive problem solving, and anger management; role playing and teacher modeling of social skills.
Mayer et al. (1983)	Vandalism-plagued elementary and middle schools in Los Angeles	Teachers were specially trained; then they delivered behavioral treatment (e.g., contingently praising children for specific accomplishments).

(Continued)

Table 9.6 (Continued)

Authors	*Ages/Grades Implemented*	*Key Components of the Index Intervention*
Olweus (1991)	Norwegian children in Grades 5–8	Teachers were trained to apply key antibullying principles including firm limit-setting, placing sanctions on rule breakers, careful monitoring of children in class and in the playground, initiating serious discussions with bullies and victims. Teachers were also instructed on showing warmth and avoiding corporal punishment.
Flay et al. (2004)	Disadvantaged, Black Chicago 5th graders	Social Development Curriculum (SDC) included 21 culturally sensitive lessons focused on cognitive-behavioral skills pertaining to anger management, social problem solving, and resisting peer pressure. The School/Community Intervention (SCI) included the SDC and a parent program aimed at improving parenting skills. Attention to community ecology.
Reid et al. (1999)	White Oregon 1st and 5th graders from lower- and middle-class homes and living in areas with above-average delinquency rates	Lift Prevention Program. Teacher component involved 20 1-hour lessons devoted to social-skills training (e.g., identifying feelings, cooperating), social problem solving (with the help of the GBG), and daily reinforcement of prosocial behavior during free play. Parent component involved instructing parents in managing their children without coercive practices à la Patterson. Parent-teacher component included a special phone line to facilitate communication.
Flannery et al. (2003)	Grades K–5 in 8 southern Arizona school districts having high rates of delinquency; half the students were Hispanic and 13%, Native American	PeaceBuilders program. Included reinforcement of prosocial behaviors, "story and live models for positive behavior," rehearsal of solutions to aversive incidents, response cost as a consequence for negative behaviors, teachers sending home notes of praise, specific prompts to promote the generalization of prosocial behavior to other contexts. Engagement of family members.
Hawkins et al. (1999)	18 Seattle schools "serving high-crime" areas, Grades 1–6; schools were 40–50% White	In-school component consisted of strengthening classroom management, which includes clear instructions, reinforcement for students who comply with teachers' requests; interactive teaching, which includes modeling appropriate behavior, checking for understanding, and remediation; cooperative learning in which heterogeneous learners depend on each other to earn reinforcers. The parent component included training in managing the child à la Patterson and helping the child succeed in school.

Olds et al. (1998; also see Olds, Kitzman, Cole, & Robinson, 1997) in a 15-year follow-up of a field experiment found that children who were assigned in infancy to the index treatment, compared with controls, had a lower incidence of arrests, disruptive behavior in school, and school suspensions.

Research on preschool programs suggests that such programs have a role to play in later violence prevention. The long-term follow-up into adolescence of children who participated in the High/Scope Perry Preschool Project field experiment (Parks, 2000; Schweinhart, Weikart, & Larner, 1986a and 1986b) found that exposure to the program was related to a lower incidence of fighting and other types of antisocial conduct, fewer arrests, less drug dealing, better attitudes toward school, and higher levels of academic achievement. Webster-Stratton (1998) found that both immediately after an intervention involving preschoolers' mothers and 1 year posttreatment (when the children were in kindergarten), the mothers displayed less harsh discipline and were less critical of their children. Compared with controls, experimental children exhibited fewer home-related conduct problems immediately after the program and 1 year later. The differences in school-related conduct problems were less clear. Although the study was not concerned with violence, Lazar and Darlington (1982) demonstrated that high-quality "early education interventions" can pave the way for significantly greater academic achievement and lower levels of grade retention and special education placement, risk factors for school violence and other aggressive behaviors.

Prevention During the Elementary School Years

A number of interventions have been aimed at benefiting elementary school children. The Fast Track Program (Conduct Problems Prevention Research Group [CPPRG], 1999a and b) is unique because it is a large randomized preventive trial that includes multimodal targeted and universal program components. The component targeted for at-risk children showed evidence of reducing disruptive and aggressive behavior, improving the children's grades, and improving parenting skills. The universal component showed evidence of improving the classroom climate and reducing in-class disruption and aggression. Dolan et al. (1993), in an experimental study, found that a first-grade, behaviorally oriented, classroom-based intervention led to a decline in aggressive behavior. Among the more aggressive first-grade boys, the effects of exposure to the intervention in first and second grades were evident in sixth grade (Kellam, Rebok, Ialongo, & Mayer, 1994). Grossman et al. (1997) found that the *Second Step* curriculum program for second and third graders led to reductions, 6 months later, in physically aggressive behavior as assessed by blind observers (although differences on parent- and teacher-reported behaviors were nonsignificant).

Tremblay et al. (1995) found long-term effects for a 2-year, preventive treatment begun in kindergarten. With boys randomly assigned to the index treatment and attentional and no-treatment control conditions, the treated

boys were (a) through age 12 more likely to be in age-appropriate regular classes, (b) through age 13 less likely to disrupt classes, and (c) through age 15, the last year data were collected, less delinquent.

Mayer, Butterworth, Nafpaktitis, and Sulzer-Azaroff (1983) found that children attending elementary and middle schools randomly assigned to a behavioral treatment showed a greater drop since baseline in disruptive and nontask behavior and vandalism over the 3 years of the study. Olweus (1991, 1994, 1997, 1999), using a quasi-experimental design involving Norwegian children in Grades 5 to 8, found that a bullying prevention program was associated with decrements in bullying and victimization in and out of school, fighting, and vandalism, as well as an increase in satisfaction with recess, an important marker of program success. Olweus's antibullying principles have been successfully implemented elsewhere (Smith, 1997).

Reid and his colleagues (Reid, Eddy, Fetrow, & Stoolmiller, 1999; Stoolmiller, Eddy, & Reid, 2000) found first and fifth graders attending schools randomly assigned to a school-and-home, behaviorally oriented prevention program, compared with children attending control schools, showed a greater pre-to-postintervention decline in physical aggression in the playground; however, among first graders, the decline was greatest in children with the highest levels of preintervention aggression. The program was also associated with a greater decline from preintervention levels in harsh verbal behavior mothers directed at children, among mothers who were above the preintervention mean but not among other mothers. Flay, Graumlich, Segawa, Burns, and Holliday (2004) found that, compared with boys attending control schools, fifth-grade boys attending schools randomly assigned to a combined school-and-parent intervention, when in Grades 6, 7, and 8, showed greater deceleration in the trajectory of violent behavior, provoking behavior, school delinquency, and substance use. Effects for girls were nonsignificant.

Flannery and his colleagues (Flannery et al., 2003; Embry, Flannery, Vazsonyi, Powell, & Atha, 1996) found that, compared with children attending control schools, children attending elementary schools randomly assigned to a universal, school-based violence prevention program after 1 year showed higher levels of social competence and prosocial behavior. Children in Grades 3 through 5 showed a greater decrement in aggressive behavior. These changes were largely maintained into the 2nd year of the evaluation. The intervention children in Grades 3 through 5 who manifested the highest baseline levels of aggression showed the greatest decrements. Hawkins, Catalano, Kosterman, Abbott, and Hill (1999) conducted a long-term follow-up of the students in Grades 1 to 5 whose schools were assigned, in a quasi-experiment, to a multimodal prevention intervention. By age 18, individuals who were assigned to the full intervention, compared with controls, showed higher levels of commitment and attachment to school, higher achievement, less school misconduct, and less violence.

Although beyond the scope of this chapter, there is some evidence that violence prevention programs aimed at disadvantaged middle and high

school students (Farrell & Meyer, 1997; Hausman, Pierce, & Briggs, 1996) show a degree of success, but not consistently (Harrington, Giles, Hoyle, Feeney, & Yungbluth, 2001; Orpinas, Kelder, Frankowski, Murray, Zhang, & McAlister, 2000). An ambitious multisite, multicomponent middle school violence-prevention effort (Ikeda et al., 2004) is in progress, but evaluation data were not available as of the writing of this chapter. Researchers recognize that beginning with middle school, preexisting patterns of antisocial conduct escalate in seriousness. A need for interventions in middle school, however, suggests that earlier efforts aimed at preventing violence have not succeeded.

Early Warning Systems

Preventing the type of violence that has erupted in schools such as Columbine High School in Littleton, Colorado, is a great concern. McGee and DeBernardo (1999) described what is involved in developing profiles of individuals who could potentially launch lethal attacks in schools. The profiles are expected to lead to early detection and prevention. A profile would include precipitating incidents such as a humiliating experience as well as demographic and dispositional factors. Problems in predicting school violence, however, are manifold. Because the base rate for attacks such as shootings is extremely low, a large number of false positives would be identified (Mulvey & Cauffman, 2001). If, in response to the base rate problem, officials widen the definition of the target behavior to include fighting and bullying, the target behaviors become more heterogeneous and common, changing the meaning of the profile.

There are two other complications in profiling. First, shooters in recent high-profile incidents manifested internalizing problems and experienced rejection by peers, conditions that are less visible to teachers and staff (Reinke & Herman, 2002). Second, students with a diagnosed mental illness are not especially likely to engage in school violence; in general, violence is at best weakly associated with mental illness (Burns, Dean, & Jacob-Timm, 2001).

Borum, Fein, Vossekuil, and Berglund (1999) noted that the Secret Service, one of whose functions is to protect U.S. and foreign officials, has moved away from profiling potential attackers (obtaining "descriptive, demographic, or psychological profiles") and concerns itself more with assessing individuals who pose a threat. The approach is actuarial and consistent with a large body of psychological research supporting the view that actuarial prediction is more accurate than clinical prediction. A characteristic of the approach is that it is fact-based and dependent on objectively ascertained information (e.g., recent preparatory behavior, the occurrence of a major SLE, disciplinary events). Borum et al. suggested that such an approach could be applied to preventing school violence. Consistent with the actuarial approach, Tobin and Sugai (1999) found that the frequency of official

disciplinary referrals for school violence in the sixth grade predicted referrals for violence in the eighth.

The actuarial approach also has limitations. First, disciplinary violations occur for heterogeneous reasons and become too unfocused to precisely predict future violence (Morrison & Skiba, 2001). Second, violence and other types of antisocial conduct that go undetected by school officials cannot be factored into the model (Tobin & Sugai, 1999). Third, relying on peers to report (e.g., through a tip line) on threats and violence (Band & Harpold, 1999) that go undetected by school officials can be problematic because such reporting can only take place in schools where students feel genuinely safe and confident that officials are vigilant (Mulvey & Cauffman, 2001). Such a description does not fit many schools where students have safety concerns. Fourth, the actuarial approach has not been subjected to the kinds of reliability, validity, and utility research that would promote confidence (Burns et al., 2001). It is unlikely that in the near future school officials can establish a distance early warning (DEW) line that will prevent the worst cases of school violence.

Given that early warning systems are problematic, it is important to note that there is evidence that secondary schools have an effect on school violence and a host of related problems. Rutter, Maughan, Mortimore, Ouston, and Smith (1979)—in what was, in effect, a natural quasi-experiment involving 12 London secondary schools—found that school quality, adjusting for student characteristics at intake, affects the rates of fighting, rule breaking, and disruptive behavior, along with outcomes such as achievement and job finding. The characteristics of the most effective secondary schools included good administrative leadership and support for teachers; an ethos that fosters civility and achievement; effective classroom management practices that include spotting disruptive behavior early and taking firm appropriate action; positive feedback from teachers; and high expectations.

Final Comments

Methodological Concerns

Grossman et al. (1997) advanced two reasons for the view that teacher reports of aggressive behavior, a commonly employed dependent variable, militate against detecting the effects of violence prevention programs. First, aggressive behavior is less common in the classroom than in other parts of the school, such as the playground. Second, the expectations of teachers assigned to experimental treatments may lead teachers to judge child behavior overly stringently, making it more difficult to demonstrate the efficacy of treatments. The possibility exists, however, that when the teacher is both intervention agent and rater (e.g., Dolan et al., 1993), bias could apply in the opposite direction. The deployment of blind observers (e.g., Grossman et al., 1997; Reid et al., 1999) in and out of the classroom would be most useful in evaluating the effects of antiviolence interventions.

Given the constraints of research conducted in schools, the modal research design has been to randomly assign a small number of units, either schools or classes, to treatment and control conditions (e.g., Flannery et al., 2003; Flay et al., 2004; Grossman et al., 1997; Mayer et al., 1983; Reid et al., 1999). In other words, the school or class, not the individual child, is the unit being randomized. It should be borne in mind that such designs, although true experiments, limit statistical power. Power is influenced by the number of units being randomized. If the within-unit intraclass correlation (ICC) is high, that is, the students within each unit being randomized (e.g., a school or a class) are very similar to each other, power is reduced. If the ICC is close to zero, power is increased to close to what it would be if the student were the unit being randomized. The constraint on power works against antiviolence interventions demonstrating effects. An example of this phenomenon comes from the CPPRG (1999b). There was little dependency in observers' and sociometric ratings of children's aggressive behavior, and intervention effects were statistically significant; however, when teachers' ratings, which showed in-class dependency (ICC = .15), were used, intervention effects were nonsignificant.

What the Research Tells Us About Prevention

To intervene early is to intervene strategically. The antecedents of violent and aggressive behavior are evident in first grade (e.g., Kellam et al., 1998) and earlier (Webster-Stratton, 1998). Aggressiveness in later grades becomes increasingly dangerous. An important idea attached to interventions in the early grades (and in preschool and even earlier) is that of changing the course of developmental trajectories bearing on violence.

Elements of the earlier described theoretical models are reflected in the interventions. Some interventions reflect the theoretical notion that SIP bears on social skills and social problem solving that provide alternatives to aggressive solutions (CPPRG, 1999a, 1999b; Flay et al., 2004; Tremblay et al., 1995). A number of interventions reflect control theory ideas regarding attachment to school (Flay et al., 2004; Flannery et al., 2003; Hawkins et al., 1999), culture (Flay et al., 2004), and home (Olds et al., 1998; Webster-Stratton, 1998) as important to preventing aggression. Several interventions embody behavioral (Dolan et al., 1993; Flannery et al., 2003; Mayer et al., 1983; Reid et al., 1999; Tremblay et al., 1995; Webster-Stratton, 1998) and cognitive behavioral (Flannery et al., 2003; Flay et al., 2004) principles of social learning. A number of interventions have taken preventive remedial action to reduce the risk of school failure (e.g., CPPRG, 1999a, 1999b; Hawkins et al., 1999; Schweinhart et al., 1986a), a major stressor that, according to strain theory, increases the likelihood of antisocial conduct. Successful schools identified by Rutter et al. (1979) were effective in promoting achievement and curbing misconduct.

Although behaviorally oriented interventions have shown promise, one problem associated with implementing individualized behavioral programs is

that many teachers prefer not to commit themselves to such programs because the programs often require a great deal of record keeping and well-honed management skills; moreover, the availability of "natural" reinforcers in classrooms is limited (Dolan et al., 1993). Reliance on extrinsic motivators could, for some children, undermine intrinsic motivation. Group-level behavioral interventions such as the Good Behavior Game (GBG) reduce some of the burden on teachers and make prosocial classroom interactions more enjoyable (Embry, 2002).

Flay et al. (2004) suggested that comprehensive interventions that address multiple risk behaviors and that involve both school and families are more likely to succeed than more narrowly focused programs. Several programs that have been successful in reducing aggressive conduct include both school and parent components (e.g., CPPRG, 1999a; Flay et al., 2004; Hawkins et al., 1999; Olweus, 1991; Reid et al., 1999; Tremblay et al., 1995). An advantage to such programs is that they allow the school to develop an ally at home who will reinforce the antiaggression lessons taught in school.

Tremblay et al. (1995) recommended that after successful early interventions have been implemented, it is useful to provide later "booster sessions" to help blunt the potential for growth in antisocial behavior that peaks in midadolescence. Perhaps more important, the implementation of a successful prevention program in the early grades should be followed with the reimplementation of the program in later grades, with adjustments for the changing developmental levels of the children. Interventions such as the GBG have worked with children in the early grades and can be adjusted to work with older children (Embry, 2002). Other adjustments to help improve the efficacy of antiviolence programs include the deployment of both universally applied program components and program components specially targeted at the children at highest risk (e.g., CPPRG, 1999a), which is important given evidence that a subgroup of children, beginning at school entry, manifests chronically high levels of physical violence (Broidy et al., 2003).

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