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CAUSES AND PREVENTION OF YOUTH VIOLENCE*

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INTRODUCTION

The dramatic increase in the rate of youth violence in the U.S. between 1987 and 1994 has received considerable attention from legal experts, public officials, and the national and international press (Zimring, 1998). This increase followed several decades of relatively stable rates. The proliferation of juvenile gangs and youth involvement in crack cocaine and handgun use have been suggested as primary factors affecting the increase in violence in the late 1980s (Blumstein, 1995; Spergel, 1995; Thornberry, 1998).

A welcome reversal of nearly a decade-long trend in rising rates of youth aggression appeared in 1995. Unfortunately, this decline has been overshadowed by several recent acts of violence in the nation's public schools. School shootings have led to renewed discussion of the causes of violence and of the strategies necessary to prevent the onset of aggressive behavior. Once largely confined to inner-city neighborhoods, violence has also become an expression of the deep frustration held by some adolescents residing in middle- and upper-class American suburbs.

No single incident better illustrates adolescent frustration and rage than the 1999 school shootings in Littleton, Colorado (Brooke, 1999). On April 20, 1999, two heavily-armed adolescents entered Columbine High School in Littleton intent on killing students and destroying the building. The two perpetrators, 17- and 18-year old boys enrolled in the school, were motivated by a desire for vengeance which they attributed to the rejection they felt from popular student athletes. Negative racial attitudes expressed by the perpetrators appeared to be a motivation for at least one of the murders. The boys' mission ended in suicide and left a stunned nation searching for answers to explain the magnitude of such a horrific act.

The aftershock of Columbine has led to myriad responses. Some elected officials and citizens favor tougher sanctions for offenders; others

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advocate for greater funding to establish broad-based prevention programs in schools and communities. All agree that far too little is known about the causes of youth violence.

Violence is difficult to understand. Knowledge of the unique individual and social conditions that cause young people to engage in violence is limited. Even less is known about the way in which these factors coalesce to create a propensity toward violent conduct. As recent school shootings illustrate, perpetrators often do not appear to be overtly dangerous to parents, teachers, peers, or neighbors prior to the commission of a violent act. This makes the prediction and prevention of violent behavior difficult.

Despite such limitations, there have been important advances in our knowledge of the causes of youth violence over the past several decades. Longitudinal studies assessing the effects of broad-based and targeted prevention programs have also identified promising strategies to prevent childhood aggression and youth violence. This paper reviews empirical evidence of risk factors for youth violence and identifies effective approaches to preventing violence in family, school, and community settings.

A. *Understanding the Causes of Youth Violence*

Efforts to understand youth violence can be divided into two general strategies. One approach to explaining violent behavior is case study analysis. Using historical evidence and witness accounts, a number of writers have attempted to portray the backgrounds and prior experiences of violent perpetrators. These detailed analyses and personal accounts are intended to help readers understand the factors and characteristics in an individual's life that contributed to the commission of a violent act.

One famous case study analysis is Sereny's (1998) account of Mary Bell, an intelligent and attractive eleven year-old girl convicted for murdering two toddlers in Newcastle, England in 1968. Sereny's analysis of Mary's case, based on extensive follow-up interviews with Mary and others, has received critical acclaim for its careful depiction of the childhood abuse experienced by Mary (Sereny, 1998). Sereny's case study is highly detailed and painstakingly researched. Yet the reader is still left wondering how the effects of horrific early life experiences and other predisposing factors coalesced in one young girl at one point in time to create a murderer.

A second approach to understanding violence assumes a social science perspective. Using this approach, investigators seek to identify broad factors that are consistently associated with the occurrence of violence in diverse populations. Scientific studies of violence provide less information pertaining to a specific violent episode or person than do case studies. Rather, they seek to promote better understanding of the

factors that contribute to violence among individuals generally. Knowledge of these factors is then used to design empirically-based prevention and treatment interventions.

There are a large number of studies addressing youth violence in the social science literature. Unfortunately, the integration of literature across social science disciplines has been relatively weak. Few interdisciplinary studies of violence have been undertaken. In most cases, researchers have implicitly adopted either a biological or sociological explanatory framework and have ignored other sources of potentially important factors.

The presence of a poorly integrated literature and consequent utility for the purposes of designing effective prevention or treatment interventions has led to the development of "risk factor" models of youth violence (Hawkins, Herrenkohl, Farrington, Brewer, Catalano, & Hirachj, 1998). The earliest risk factor models were primarily "lists" of the known correlates of youth violence. These models were adapted from previous research that identified risk factors for adolescent problem behaviors such as substance abuse (Hawkins, Catalano, Miller, 1992) and delinquency (Hawkins, Jenson, Catalano, Lishner, 1988). Early models failed to consider the temporal relationship of risk factors to the occurrence of violence or to examine the additive and interactive effects of risk factors. Recent reviews of risk factors for youth violence (e.g., Thornberry, 1998) have improved on earlier efforts by limiting their selection of studies to those in which the risk factor clearly preceded violent offending. Investigators have also conducted longitudinal studies to better understand the processes by which risk factors influence behavior over the course of childhood and adolescence (e.g., Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998).

Risk factors for youth violence are presented by individual, situational, neighborhood, and community levels of effect below. We begin our review with a discussion of population indicators associated with youth violence.

B. *Risk Factors for Youth Violence*

1. Population Indicators

Variables such as gender and ethnicity are frequently included in risk factor models. The identification of such characteristics in models of violence has been the topic of considerable debate. We concur with Earls (1994) who has argued that it may be inappropriate to consider factors such as gender, age, or ethnicity as causes of violence or delinquency. We, therefore, label such variables as "population indicators" and include them in this review for the purpose of informing efforts to identify and help populations at high-risk for involvement in violent behavior.

Gender. Male gender has long-been associated with violence. Official arrest records and victim surveys indicate that between 85 percent and 90 percent of all violent offenders are male (Sampson & Lauritsen, 1994). Males are particularly over represented in robbery, rape, and manslaughter rates (Hill & Harris, 1981). Although there is some evidence for recent reductions in the male-to-female ratios for selected categories of violent crimes, violence continues to be a predominantly male phenomenon (Sampson & Lauritsen, 1994).

Age. Most violent acts are committed by perpetrators ages 17 to 25, suggesting that late adolescence and early adulthood are high-risk developmental periods for violence (Earls, 1994). Arrests for violent crime peak in late adolescence-early adulthood (Tolan & Gorman-Smith, 1998). In general, violent crime rates among youth 14 or younger are quite low. Data from the 1990 Uniform Crime Reports for males indicated that only 3 and 8 of every 100,000 youth age 14 or younger were arrested for murder/nonnegligent manslaughter or rape, respectively. Thus, most crime appears to be committed during a relatively brief developmental window spanning mid-to-late adolescence and early adulthood.

Race and Ethnicity. Studies using official records, victim surveys, and surveys of self-reported violence consistently identify racial differences in rates of violent offending (Hawkins, Laub, & Lauritsen, 1998). Uniform Crime Reports data indicated that African-American youth constituted 57.7 percent, 44.6 percent, 60.2 percent, and 41.7 percent of all juvenile arrestees in 1995 for the crimes of murder/nonnegligent manslaughter, forcible rape, robbery, and aggravated assault, respectively. African-American youth comprise 15 percent of the U.S. juvenile population, and thus, were substantially over represented in the official arrest records.

Studies asking youth to self-report violent behavior identify relatively high rates of violent offending among African-American youth (Elliott & Ageton, 1980), but the black: white differential is usually smaller than that identified in studies using official records (Elliott, 1994). Victim surveys similarly support significant differences in black: white rates of violent offending. National Crime Victimization Survey data indicated that 41% and 51% of juveniles identified by victims were black and white youth, respectively (D.F. Hawkins et al., 1998).

Despite current contention concerning the role of race in violence "quite surprisingly, criminologists have conducted only a few studies that explore the extent to which socioeconomic disparity accounts for the well-documented differences in rates of violence shown for blacks and whites" (D.F. Hawkins et al., 1998, p. 40). Further, D.F. Hawkins et al. argued that purely individual-level theories, which have largely characterized the field to date, have poorly accounted for ecological factors that

might explain racial differences in rates of violence. In addition to poverty and other macrocontextual factors, situational factors such as drug trafficking, which flow from macro-level conditions, may explain some portion of the black-white differential in rates of violence (D. F. Hawkins et al., 1998).

Socioeconomic Status. A recent meta-analysis of 34 longitudinal studies of serious or violent delinquency found family socioeconomic status to be one of the strongest predictors of offending between ages 6-11, although family socioeconomic status was a much weaker predictor of offending at ages 12-14 (Lipsey & Derzon, 1998).

TABLE 1. POPULATION INDICATORS OF YOUTH VIOLENCE

Population Indicators
Male gender
Age 15-25
African- or Hispanic-American race/ethnicity
Low socioeconomic status

2. Individual-Level Factors

Individual-level factors include biological traits, psychological characteristics, and family, school, and peer factors.

a. Biological Factors

Heredity. Studies have demonstrated significant differences between various strains of rodents vis-à-vis aggressive behavior for more than 50 years. However, the role of genetic factors in human aggression is much less clear. Early efforts to identify a possible Mendelian mode of inheritance of aggression were not fruitful nor were studies attempting to relate violence among some males to the presence of an extra Y chromosome (Miczek, Mirsky, Carey, DeBold, & Raine, 1994). Twin and adoption studies support a genetic contribution to important temperamental correlates of aggression, although the findings are more compelling for adults than for adolescents. Early twin and adoption studies provided "strong evidence for a family environment effect on juvenile antisocial behavior [but later] studies suggest that genetics cannot be ignored during this period" (Carey, 1994, p. 31).

In summarizing the results of his review of the genetics of violence, Carey (1994) concluded that "together the data do not support a strong

role for heredity in violence. On the one hand, the positive correlations between violence in biological parents and alcohol abuse in adopted sons and the trends of the twin correlations suggest a genetic effect. On the other hand, the failure in adoption studies to detect a significant relationship between violent offending and other indices of crime in separated relatives is evidence that any putative genetic factor is weak" (p. 41). Moreover, the mechanisms by which genetic effects on violence are transmitted are highly complex and nonspecific—that is, genetic influences do not appear to predispose directly to violence, but rather, to antisocial behavior more generally.

Hormones. The notion that hormonal levels, particularly androgens like testosterone, are associated with violence among young men is widespread though controversial. Archer, Biring, and Wu (1998) examined the findings of eighteen studies via meta-analysis and concluded that there was a statistically significant positive association between testosterone levels and direct measures of aggression.

Neurochemistry. The literature addressing the role of neurotransmitters in aggression has grown substantially in recent years. A number of studies (e.g., Linnoila, DeJong, & Virkkunen, 1989; Virkkunen, DeJong, Barko, Goodwin, & Linnoila, 1989) indicate that low levels of serotonin in the blood or cerebrospinal fluid are related to aggression, suicide, and impulsivity. Recognition of the role of norepinephrine in the "flight or fight" reaction has also stimulated research addressing its effects on violence. In general, investigation of the neuroanatomical and neurophysiological correlates of youth violence is in its infancy, but may yield clinically useful findings in the coming decades.

b. Psychological Factors

Numerous psychological and psychiatric characteristics, including hyperactivity, impulsitivity, and sensation-seeking are associated with violence.

Impulsivity and Hyperactivity. Childhood hyperactivity is related to later violence in adulthood (Maguin, Hawkins, Catalano, Hill, Abbott, & Herrenkohl, 1995). Restlessness, poor concentration, impulsivity, and risk-taking in childhood also predict later violence (Farrington, 1989 a, b; Maguin et al., 1995).

Early Aggressiveness and Involvement in Problem Behaviors. Youth who exhibit aggressive behavior in adolescence are at substantial risk for continuing this behavior into adulthood (Farrington, 1989 a, b; McCord & Emsinger, 1995; Olweus, 1977), particularly those with an early onset of aggressive and delinquent behavior and alcoholism (Cloninger, 1987; White, 1992).

Violent adults often have childhood histories characterized by early engagement in sexual intercourse, drug sales, and other acts involving overt disobedience and deviance (Farrington, 1989 a, b; Maguin et al., 1995). Antisocial conduct often occurs in conjunction with deceitful or manipulative behavior and as an expression of hostility toward authorities (Ageton, 1983; Elliott, 1994; Williams, 1994).

Mental Health. Anxiety, depression and related childhood conditions, such as excessive worrying, appear to be weakly inversely related to risk for later violent offending (Farrington, 1989 a, b; Mitchell & Rosa, 1979). Howard, Kivlahan, and Walker (1996) concluded that internalizing disorders in youth were not related to the age of onset of substance use, but were associated with the intensity of substance use; thus, internalizing disorders might have indirect effects on violence through intensity of substance use.

Characteristics of the social environment are consistently related to violence. Risk factors from family, school, and peer group settings are reviewed below.

c. Family Factors

Parental Criminality. Baker and Mednick (1984) found a significant positive association between paternal criminality and the likelihood of later violent offending among young Danish men. Farrington (1989a; b) noted that parents' arrests prior to their son's tenth birthday were associated with the son's self-reported and officially recorded rates of violent crime in early adulthood. However, Moffitt (1987) and McCord (1979) failed to find an association between parental criminality and rates of violent offending by offspring. A recent study of risk factors for gang membership in Seattle identified a significant positive relationship between parental proviolence attitudes and the likelihood of youth later joining a gang (Maguin et al., 1995).

Child Abuse and Neglect. Several evaluations suggest a positive, though weak, association of child abuse with later violent offending (Smith & Thornberry, 1995; Zingraff, Leiter, Myers, & Johnson, 1993). Child sexual abuse was found to be inversely associated with the likelihood of later violent offending (Widom, 1989; Zingraff et al., 1993). Child neglect appears to be more strongly related (positively) to later violence than child physical or sexual abuse (J. D. Hawkins et al., 1998).

Family Conflict. Domestic conflict among family members is consistently related to youth violence. Marital and family discord were positively associated with youth violence in studies conducted by Farrington (1989a, b), McCord, McCord, and Zola (1959), and Maguin et al. (1995).

Parent-Child Interaction and Family Bonding. Several investigations underscore the protective role of high levels of parent-child interaction on youth violence. Farrington (1989 a, b) found that the more in-

volved fathers were in their son's education at age 18, the lower the likelihood of violence by sons at mid-life. Williams (1994) reported that higher levels of family involvement and interaction when youth were age 14, were associated with lower levels of self-reported violence at age 16.

Few studies have examined associations between family bonding and youth violence, other than Ageton's (1983) investigation of the effects of negative family labeling on boys' commission of sexual assaults between ages 13 and 19. Thornberry (1998) discussed several investigations indicating that low family involvement (Friedman, Mann, & Friedman, 1975; LeBlanc & Lanctot, in press) and poor parent-child emotional relationships (Campbell, 1990; Moore, 1991) increased youths' risk of joining a gang.

Family Management Practices. Excessively punitive or permissive parental disciplinary practices are associated with later youth violence. Authoritarian (Farrington, 1989 a, b), punitive (McCord et al., 1959, Wells & Rankin, 1988) and aggressive (McCord, 1979) parenting styles have been implicated in the development of youth violence; conversely, lax (McCord et al., 1959), passive (Farrington, 1989 a, b), and inconsistent (Maguin et al., 1995) family management practices also increase the risk of later youth violence. Poor family management practices increase the risk for gang membership (Moore, 1991; Virgil, 1988; Winfree, Backstrom, & Mays, 1994), which itself is an important risk factor for later violent offending.

Other Family Factors. Several other family factors have been associated with violence. Leaving home before age 16 increased youths' risk for later violence in one study (McCord & Emsinger, 1995). Similarly, childhood separation from one or more parents early in life predicts later violence among youth (Farrington, 1989 a, b; Henry, Avshalom, Moffitt, & Silva, 1996; Wadsworth, 1976). Frequency of residential changes by age 16 was associated with rates of self-reported violence by age 18 among youth participating in a school-based prevention program in Seattle (Maguin et al., 1995).

d. School Factors

The many school factors associated with violence include truancy, dropping out, school failure, low attachment and commitment to school, number of schools attended, and enrollment in a school attended by a comparatively large number of delinquents (Denno, 1990; Farrington, 1989 a, b; Maguin et al., 1995). Research indicates that low levels of commitment to school, poor school performance, and other indicators of poor adaptation to school demands pose risks for later violence. Studies of risk factors for gang affiliation identify low academic expectations and self-esteem vis-à-vis school performance, having gang members as stu-

dent peers, and educational frustration and stress as important concomitants of gang membership (Curry & Spergel, 1992).

e. Peer Factors

Delinquent peers and siblings increase the risk of later violent offences (Ageton, 1983; Farrington, 1989 a, b; Williams, 1994). Gang membership, in particular, has potent effects on risks for later violent offending. Thornberry (1998) observed that rates of youth violence were high during periods of gang membership, and declined notably following termination of gang affiliation. The facilitation effect of gang membership on youth violence was not due simply to the effects of associating with highly delinquent peers, but was largely attributable to the effects of gang membership per se.

TABLE 2. INDIVIDUAL-LEVEL RISK FACTORS FOR YOUTH VIOLENCE

Biological Factors

- Heredity
- High testosterone levels
- Low CNS serotonin levels

Psychological Characteristics

- Impulsivity/hyperactivity/restlessness
- Risk-taking/sensation-seeking orientation
- Early involvement in aggressiveness and problem behaviors
- Neuropsychological dysfunction
- Mental health problems

Family Factors

- Parental criminality and proviolence attitudes
- Child neglect and abuse
- Marital and family conflict
- Low levels of parent-child interaction and family bonding
- Excessively punitive or permissive family management practices
- Frequent residential changes
- Leaving home prior to age 16

School Factors

- High rates of truancy
- Suspension from school
- Dropout
- Low academic expectations
- Low bonding to school
- Poor school performance
- Enrollment in a school attended by a large number of delinquents

Peer Factors

- Delinquent/violent peers
- Delinquent/violent siblings
- Gang membership

3. Situational Factors and Macrocontextual

a. Situational Factors

Situational factors, are circumstances that contribute to the onset or outcome of violent acts. A discussion of situational factors based on the explanatory framework used in the seminal review by Sampson and Lauritsen (1994) follows.

Perpetrator-Victim Relationship. It has long been recognized that the victims and perpetrators of violence tend to have common demographic features and may even be significantly overlapping populations (Wolfgang, 1958). There are several reasons why violent offending might increase the risk of victimization, and in turn, why victimization might increase the risk of violent offending. Victims of violent crime may retaliate against perpetrators if subcultural norms support such a response, particularly if they view offenders as unlikely to call, or to be aided by, the police. Association with other offenders and involvement in deviant lifestyles, also increases the likelihood of victimization.

Substance Abuse. Substance abuse is commonly associated with violent events, but the causal nature of the drug-violence relationship is still a matter of heated debate. Drugs may directly dispose to the commission of violent acts via neurological effects. Conversely, violent crimes may be committed to obtain funds with which to buy drugs. Because drug use occurs most frequently in subcultural contexts where violence is comparatively common (Miczek, DeBold, Haney, Tidey, Vivian, & Weerts, 1994), some level of association between these behaviors would be expected even if they were causally independent.

Whatever the causal association between substance use and violence, different drugs appear to exert widely varying effects on the propensity to violence. Miczek, DeBold, et al. (1994) concluded that marijuana and hallucinogens do not appear to instigate violent acts. Conversely, there is widespread agreement that alcohol abuse is strongly associated with violence (National Institute on Alcohol Abuse and Alcoholism, 1997). Tinklenber and Ochberg (1981) reported, for example, that 61% of the adolescent homicide offenders they studied were alcohol abusers.

At present, traditional accounts of drug-use effects suggest that stimulants, such as cocaine and amphetamines, increase the likelihood of violence, whereas depressants, such as heroin and benzodiazepines, tend to decrease violence (Miczek, DeBold, et al., 1994). Studies examining dose-response relationships and acute versus chronic drug administration effects in different subject populations are rare in the violence area. Additional research on the endocrinological, neurobiological, pharmacological, and environmental determinants of drug use, and the effects of different doses and dosage schedules on different client populations vis-

à-vis violence are needed to better inform current public policy and clinical practice.

Availability of Weapons. The presence of a weapon in a particular setting, whether held by the perpetrator or potential victim, may significantly influence the outcome of an altercation. Lowry, Powell, Kann, Collins, and Kolbe (1998) examined the prevalence of, and relationship between, weapon-carrying and physical fighting among more than 10,000 participants ages 12-21 in the Youth Risk Behavior Survey. Nearly 15 percent of youth reported carrying a weapon in the previous 30 days (23.7 percent of males) and approximately 39 percent had been in a fight within the past 12 months. Adolescents who carried a weapon were more likely to have been involved in a physical fight within the past year than youth who did not carry a weapon. Further, youth who carried a handgun were significantly more apt, controlling for demographic variables and frequency of fighting, to have received medical care for fight-related injuries. Thus, although many youth feel that carrying a weapon is helpful in avoiding a fight, these data and others (e.g., Cook, 1983; Saltzman, Mercy, O'Carroll, Rosenberg, & Rhoades, 1992) suggest that carrying a weapon is associated with a greater likelihood of physical fighting and injury.

b. Macrocontextual Factors

Macrocontextual factors are characteristics such as poverty and community disorganization that have the capacity to exert both direct and indirect influences on violence.

Poverty. Studies of neighborhood poverty and violent crime generally have reported positive associations. Seminal research by Shaw and McKay (1942) identified ethnic heterogeneity, poverty, and residential mobility as important factors explaining variations in Chicago neighborhood delinquency rates. Shaw and McKay (1942) found that neighborhood rates of delinquency remained stable, even following significant changes in the ethnic populations comprising an area over time. Later studies further supported an association between indicators of low socioeconomic status and rates of violent crime (e.g., Bensing & Schroeder, 1960; Bullock, 1955, Schmid, 1960). In Chicago, Block (1979) found that measures of the percent of area families living in poverty or headed by a woman were significantly associated with neighborhood homicide and assault rates; similar findings have been reported for other major metropolitan areas (Beasley & Antunes, 1974; Messner & Tardiff, 1986).

Although findings suggest that community characteristics in general, and poverty specifically, are related to rates of violent crime among youth and adults, they still do "not explain how they are related to poverty and, in turn, how they increase violence. And they do not explain

why racial differences in violent crimes tend to disappear when poverty is included as an explanation" (Reiss & Roth, 1993, p. 132).

Population Density. Substantial evidence supports the notion that population density is positively associated with rates of violent crime. Areas with a high percentage of housing units that are multiunit dwellings, that have a relatively large number of persons living within a defined area, or a large proportion of rented as opposed to owned, housing units tend to evidence comparatively high rates of violence.

Residential Mobility. Cross-sectional studies relating levels of neighborhood residential mobility to violent crime (e.g., Block, 1979; Smith & Jarjoura, 1988; Sampson, 1985 a, b), and longitudinal studies of the effects of neighborhood changes on rates of violent crime (e.g., Taylor & Covington, 1988), generally report consistent findings. High rates of mobility are positively associated with violence victimization rates, whereas measures of neighborhood stability are inversely related to the prevalence and incidence of violent events.

Community Disorganization. Several studies suggest that community disarray is predictive of increased levels of youth violence. Maguin et al. (1995) reported that low attachment to the neighborhood and measures of community disorganization were positively associated with self-reported violence at age 18. Frequency of exposure to neighborhood violence and racial discrimination (McCord & Ensminger, 1995) have also been related to violence among persons in late adolescence and early adulthood.

Media Influences. Numerous governmental and professional commissions have examined the impact of media portrayals of violence (American Medical Association, 1996; American Psychological Association, 1993; Centers for Disease Control and Prevention, 1991). In general, "these investigations have documented consistently that exposure to media violence... contributes to aggressive behavior in viewers and may influence their perceptions about violence in the real world" (Smith & Donnerstein, 1998, p. 175).

The most comprehensive examination of media violence heretofore conducted, the National Television Violence Study (Kunkel, Wilson, Donnerstein, Linz, Smith, Blumenthal, Gray, & Potter, 1995; Kunkel, Wilson, Linz, Potter, Donnerstein, Smith, Blumenthal, & Gray, 1996) conclusively established that modern television in the U.S. is saturated with violence. A majority (57%) of the more than 5000 programs evaluated over the two viewing seasons contained violence. The violence presented was largely sanitized; 86% of all violent episodes depicted no blood or bodily damage and 74% included no punishment or criticism of violence. Television violence is an important social concern because youth (and adults) watch so much television; 98% of American homes have a television and two-thirds of these also subscribe to cable TV

and/or have a VCR. American 12-17 year-olds watch an average of 20 hours of TV a week, making it one of their principal life activities.

TABLE 3. SITUATIONAL AND MACROCONTEXTUAL RISK FACTORS FOR YOUTH VIOLENCE

Situational Factors
Victim-victimizer relationship
Substance abuse
Presence/availability of a weapon
Macrocontextual Factors
Neighborhood poverty and population density
High residential mobility among neighborhood residents
Community disorganization
Media influences

Summary

Although numerous risk factors for violence have been identified in prospective, longitudinal studies of youth, including those operating at the individual, micro, and macrocontextual levels, the study of violence is still in its infancy. More research and more sophisticated statistical and methodological techniques are needed to model a phenomenon as complex and multiply-determined as youth violence. However, as the review above indicates, we do possess enough information currently to argue that media portrayals of violence should be curtailed and the child-rearing practices of many parents improved. Prevention and early intervention strategies with youth who are high risk for violent offending and victimization should be guided by these and other research findings identified in this review.

C. *Effective Violence Prevention Strategies*

Risk-factor models of youth violence have a significant utility for preventing violence. In one application of the model, practitioners identify risk factors as "intermediate" targets in efforts to reduce youth violence. For example, our review indicates that poor family management practices are associated with adolescent violence. Thus, an appropriate violence prevention strategy might include a parent training component that improves parents' capacity to effectively discipline their children. Effective family management skills (the intermediate target) may in turn, reduce a child's risk for involvement in violence during adolescence.

Longitudinal studies have begun to identify effective violence prevention programs. Effective programs target known risk factors for violence and strive to empower youth and parents with the social and cognitive skills necessary to make positive and pro-social life decisions. Effective program types are identified in Table 4 and described briefly below. Comprehensive reviews of these programs are found in Catalano, Arthur, Hawkins, Berglund, and Olson (1998), Elliott (1999), and Wasserman and Miller (1998).

1. Prenatal, Early Childhood, and Family Support Programs

Prenatal and infancy home visitation programs provide support to parents and infants during the first years of a child's life. These programs target risk factors for violence such as parent-child attachment, family management skills, and poverty. Interventions such as the Prenatal and Early Childhood Nurse Home Visitation Program (Olds, Hill, Mihalic, & O'Brien, 1998) offer in-home services to women during pregnancy and the first two years following the birth of a child. The program seeks to improve the health status of women and children by providing parenting skills to high-risk families. The long-term goal of the program is to reduce delinquency, substance use, and violence among children whose parents received intervention services. Evaluations of the program have

yielded fewer reports of child abuse and neglect and significantly less delinquency among participants than among control group subjects (Olds et al., 1998).

Family support programs such as the Yale Child Welfare Project (Seitz & Apfel, 1994) seek to enhance attachment between parents and infants by providing adequate medical, educational, and psychological services to family members. Program components include routine home visits with parents and pediatric care, high-quality daycare, and medical exams for children. Controlled investigations of the program revealed significantly fewer school adjustment problems and lower levels of teacher-rated aggression among experimental group subjects than among control group subjects.

Early childhood education strategies target school risk factors for violence by involving high-risk children in preschool and academic tutoring programs. One of the most rigorously evaluated early childhood education programs is the Perry Preschool Program (Schweinhart, Barnes, & Weikart, 1993). The program includes child enrollment in a structured preschool program and weekly home visits by preschool teachers. Longitudinal evaluations of the program have found significantly less delinquency and self-reported violent behaviors among program participants than among control group subjects (Schweinhart et al., 1993).

2. School-Based Programs

Anti-bullying strategies seek to reduce and prevent bully and victim problems in classroom and school settings. Anti-bullying programs target risk factors of early antisocial behavior and peer rejection by establishing school norms about the inappropriateness of bullying behavior. Such programs have increased considerably following school shootings in Littleton, Colorado and elsewhere. The most widely-used anti-bullying intervention model is based on a bullying prevention program developed by Olweus (1991). Evaluations of this Norwegian program revealed significant reductions in general delinquency and aggressive behavior among experimental subjects relative to controls (Olweus, 1991).

Structured school-based prevention curricula for youth and parents comprise a variety of techniques designed to reduce aggressive behavior and violence by reducing school risk factors for antisocial behavior. Programs such as the Seattle Social Development Project (SSDP) (Hawkins, Catalano, Morrison, O'Donnell, Abbot, & Day, 1992), Promoting Alternative Thinking Strategies (PATHS) (Greenberg, Kusche, Cook, & Quamma, 1995), the Baltimore Prevention Study (Kellam & Rebok, 1992), and Positive Action through Holistic Education (PATHE) (Gottfredson, 1986) employ structured curricula to enhance academic performance and increase children's commitment to school. Many pro-

grams emphasize skill development and strengthening relationships with pro-social peers. Some programs also teach parents effective strategies for helping their children to achieve academic success. Evaluations of these programs have found significantly less aggressive behavior and higher levels of attachment and commitment to school among experimental subjects than control subjects.

The *school organization and classroom management* approach, addressing individual learning styles, classroom structure, and student involvement in decision-making has also been used effectively in prevention contexts. The SSDP has experimented successfully with *cooperative learning*, a strategy designed to foster peer-to-peer education. The project has also demonstrated success in training teachers how to work with multiple levels of academic ability in a single classroom. School mapping, a relatively new prevention strategy, involves students in a school-wide process intended to identify the location of violent events in their school. Following identification, strategies are designed to diffuse the conditions leading to aggression or violence in specific parts of the school (Astor, Vargas, Pitner, & Meyer, 1999). Although preliminary evaluations of mapping strategies appear promising, controlled evaluations of the approach have not yet been conducted.

3. Social, Behavioral, and Cognitive Skills Training Programs for Children and Parents

Social and behavioral skills training has been used widely in violence and substance abuse prevention programs. Skills training curricula use the behavioral strategies of modeling, practice, and reenforcement to teach children and youth social, consequential thinking, and anger or impulse control skills. Skills training prevention programs seek to increase youths' cognitive abilities to recognize high-risk situations and to develop prosocial responses to such situations.

A number of investigators have developed and tested the effects of skills-based programs on preventing general delinquency, substance abuse, and aggressive behaviors (e.g., Conduct Problems Research Group, 1992; Guerra, Eron, Huesmann, Tolam, & Van Acker, 1996). Among the most tested and effective interventions is Life Skills Training, a school-based program developed by Botvin and colleagues (Botvin & Botvin, 1992; Botvin & Eng, 1982; Botvin, Schinke, Epstein, & Diaz, 1994).

Life Skills Training (LST) is a skills-based curriculum designed to prevent drug use, aggressive behaviors, and other conduct problems in young children. The LST program was developed to reduce positive substance use-related expectancies, teach skills for resisting social influences to participate in deviant activities, and promote the development of personal self-management and social skills. LST is delivered using traditional didactic teaching methods, group discussion, classroom demon-

strations, and cognitive-behavioral skills training. The skills training component is designed to help students improve communication and social skills such as initiating social interactions and engaging in conversation. Skills related to boy-girl relationships and verbal and nonverbal assertiveness are also addressed. A rigorous evaluation of the program was conducted in a randomized prevention trial with 5,000 seventh-grade students from 56 schools in New York State (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990). Subjects in the experimental group used significantly less marijuana and were significantly less likely to engage in problem drinking and delinquency than subjects in the control group at 28- and 40-month follow-up.

4. Family-Based Programs

Family-based programs go beyond working only with children and include one or both parents in intervention efforts. Family approaches typically involve *changing parenting practices, increasing parent-child bonding, reducing family conflict,* and *developing appropriate parental attitudes towards violence.*

Parent training interventions are one type of effective family-based prevention program. Webster-Stratton (1998) developed an innovative program called Strengthening Parenting Competencies that targets mothers and teachers of Head Start children. The first component of the program teaches mothers positive discipline strategies and effective parenting skills. Mothers also learn ways to enhance their children's social skills and prosocial behaviors. The second program component trains teachers and teacher aides to modify their classroom management to be consistent with the skills being learned by the mothers. Effects of the program on parenting competencies, level of parental involvement in school, and children's social competencies and conduct problems have been evaluated by Webster-Stratton (1998). Based on self-reported and observational data, mothers in the intervention group significantly increased their ability to discipline and praise their children and significantly decreased their use of harsh and critical behavior, commands, and negative affect following participation in the program. Teachers reported significant increases in parental involvement in their children's education and in contact with school officials. Children in the program significantly reduced their deviant and noncompliant behaviors, negative affect, misbehavior, and antisocial conduct at twelve and eighteen month follow-up.

A second family-based intervention that has received much attention in the prevention field is the Strengthening Families Program (SFP) developed by Kumpfer and colleagues (Kumpfer, Molgaard, & Spoth, 1996). SFP offers parent training and children's skill building components. Parent training focuses on enhancing positive child behaviors by increasing attention and reinforcement, setting behavioral goals, and teaching differential attention, communication, problem-solving, and

limit-setting skills. The parent program also includes alcohol and drug education. The children's skills program includes training that targets understanding feelings and increasing behavioral, communication, problem-solving, resisting peer pressure, compliance, and anger management skills. SFP was recently tested in a clinical research trial with middle-school children and their families in nineteen economically disadvantaged counties in rural Iowa (Kumpfer et al., 1996). Significant improvements in children's problem-solving ability, emotional status, and pro-social skills and significant reductions in family conflicts among participants were reported (Kumpfer et al., 1996).

5. Community-Wide Prevention Programs

Community-wide efforts involving multiple programs and participants include (a) intensive and sustained programs targeting youth with demonstrated antisocial behavior; (b) specific but less intensive services focused on high-risk youth populations; and (c) universal prevention interventions aimed at the whole community (Mrazek & Haggerty, 1994). Examples of these program types are reviewed below.

One universal community-level prevention program is the Midwestern Prevention Project (Pentz, Dwyer, MacKinnon, Flay, Hansen, Wang, & Johnson, 1989). Program components include (a) school-based resistance skills training for sixth and seventh graders, (b) homework requiring role-playing between parents and family members, (c) a parent organization that reviews school prevention policy and trains parents in positive parent-child communication skills, (d) training sessions for community leaders involved in prevention, and (e) mass media coverage. Controlled evaluations of the program have been conducted in forty Kansas City schools and in fifty-seven Indianapolis schools (Johnson, Pentz, Weber, Dwyer, Baer, MacKinnon, Hansen, & Flay, 1990; Pentz et al., 1989). Outcomes to date have primarily examined substance use among participants. Rates of cigarette, alcohol, and marijuana use were significantly lower among youth in the intervention group than among youth in the comparison group after the first year of the project. After three years of intervention, there were significantly lower rates of cigarette and marijuana use for the intervention group compared to comparison group subjects. Additional evaluations of the program's effect on aggressive behavior and violence are needed.

An intervention that uses a combination of classroom, parent involvement and community-based approaches is Project Northland (Williams & Perry, 1998). This program was implemented in several small communities in northeastern Minnesota that were targeted because of a high prevalence of alcohol-related problems. Twenty-four school districts were randomly assigned to either intervention or delayed intervention conditions. This longitudinal study followed the same group of 2,351 students from sixth grade to high school graduation. The first

phase of the project included three years of behavioral curricula, peer leadership, parent involvement, and community task forces to initiate community level changes. At the end of the first three years, the intervention group demonstrated statistically significant reductions in onset and prevalence of drinking. These effects were attributed to changes in peer norms concerning the acceptability of underage drinking, parent-child communication that reinforced non-drinking, increased perceptions of the adverse consequences of drinking, and increased resistance skills (Williams & Perry, 1998).

Hawkins, Catalano, and associates (1992) developed a program that incorporates community involvement in the developmental phases of prevention. The Communities That Care (CTC) program is a comprehensive community intervention that includes three phases. In phase one, key community leaders take part in an intensive orientation that introduces them to risk factors for substance abuse and violence. During this phase leaders become part of an oversight body for the program and are encouraged to use their knowledge of the community to develop a prevention board. In phase two, prevention board members are trained to conduct a community risk and resource assessment. Board members carry out the assessment and then design prevention strategies based on a menu of approaches that have been shown to be effective in preventing substance abuse. The third phase involves the implementation and evaluation of the prevention strategy. Community task forces are involved actively in implementation and evaluation. This model has undergone both pilot testing and implementation in several communities. It appears that the CTC process works best when there is ongoing and proactive technical assistance during the early stages of community mobilization (Hawkins, Arthur, & Olson, 1997). Process evaluations have shown positive community involvement across all three phases (Manger, Hawkins, Haggerty, & Catalano, 1992); controlled evaluations are needed to assess the impact of the approach on violence.

TABLE 4. EFFECTIVE VIOLENCE PREVENTION APPROACHES

Prenatal, Early Childhood, and Family Support Programs

- Prenatal and infancy home visitation
- Family support
- Early childhood education

School-Based Programs

- Anti-bullying
- Structured prevention curricula
- School organization
- Classroom management

Skills Training Programs

- Social and behavioral skills training
- Cognitive skills training
- Resisting negative influences
- Life skills training

Family-Based Programs

- Parent training
- Increasing parent-child bonding
- Reducing family conflict

Community-Wide Programs

- Changing community norms about violence
- Parent and community involvement

6. Characteristics of Effective Programs

A number of investigators (e.g., Dryfoos, 1998; Elliott, 1999; Jenson & Howard, 1998; 1999) have identified elements that appear to be present in effective prevention programs. Listed below, these program characteristics offer a set of guiding principles for family, school, and community-based efforts to prevent youth violence.

Effective violence prevention programs:

- *Target known risk factors for youth violence*
- *Involve youth, parents, teachers, and community members*
- *Monitor the implementation of program components*
- *Use culturally-relevant, gender-specific, and developmentally-appropriate strategies*
- *Establish high standards and expectations for staff and participants*
- *Provide comprehensive and ongoing interventions*

Practitioners and administrators developing youth violence prevention programs should consider these characteristics when designing and implementing interventions.

CONCLUSIONS

The aftermath of Columbine and other American school shootings has left a number of unanswered questions about the nature of youth violence. Among the most compelling questions are those concerning causes of violence and the identification of effective ways to prevent violence. What are the individual, social, and environmental factors that coalesce in young people prior to the commission of a violent act? Can future acts of youth violence be prevented? This paper has addressed these questions by reviewing risk factors for violence and identifying prevention programs that have demonstrated positive effects in preventing violence.

Risk factor models for understanding and preventing violence offer a guiding framework for the design and evaluation of universal and targeted prevention programs. Our review suggests that some programs are successful in reducing aggression, violence, and other problem behaviors during adolescence. These programs should be replicated in schools and communities across the U.S.

Prevention is an important component of an overall social policy designed to reduce youth violence. However, policy directives are also needed to support a continuum of early intervention and treatment services aimed at reducing violence. Policies and enforcement practices to

protect youth from exposure to media violence and legislation which reduces youth access to handguns and other weapons must be enacted. Parent and community involvement in finding solutions to youth violence should be encouraged. Finally, mental health and social work services in school settings should be increased to booster prevention efforts and to assist youth who are victims of violence at home or in the community.

Knowledge of how risk factors for violence interact to create violent behavior is limited. Additional longitudinal studies examining the developmental processes associated with violence are therefore a high priority. Comparative studies of the processes that increase or decrease the likelihood of violence among different ethnic groups should also be conducted. Investigations are also needed to examine causes of violence among girls and young women.

Public concern about violence has never been greater. The concerted efforts of practitioners, researchers, legal experts, elected officials, and the community are needed to continue the constructive dialog about the causes of youth violence. Understanding and preventing youth violence must become a long-term aim and overriding priority of politicians, policymakers, and practitioners if continued progress is to be made in this area.

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