What Works in Reducing Adolescent Violence:

An Empirical Review of the Field

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INTRODUCTION[1]

The rising prominence of adolescent violence among national concerns has prompted increasing demands for efforts to curb this urgent problem. These demands have resulted in a torrent of programs by schools, neighborhood organizations, police, courts, social services, and health agencies. Unfortunately, the effectiveness of these programs has seldom been tested. Most have been local community responses, packaged curricula that can be "plugged into" ongoing classes, or attempts to apply programs developed for other problems. Although often based on good intentions and promising ideas, these programs have rarely been subjected to empirical evaluation of their actual impact on adolescent violence. It is not uncommon to find groups claiming the effectiveness of a program simply because it serves a large number of persons or has existed for a substantial period of time, or because testimonials have been collected from clients and authority figures. Although these may represent desirable features of interventions, they have been too often persuasive in place of any demonstrated effects. This proliferation of programs without adequate empirical evaluation begs the question: What actually works to reduce adolescent violence?

A number of commissions and conferences have attempted to catalog current efforts at stemming adolescent violence, organize information about program design, clarify the underpinnings of adolescent violence, and define the scope of the problem. For example, recent reports from the Centers for Disease Control (1993) and the Education Development Corporation (Cohen & Wilson-Brewer, 1991) have provided descriptions of the efforts under way and have presented summary evaluative statements about the field. Similarly, the National Research Council's (1993) report, *Understanding and Preventing Violence*, critiqued selected programs and provided a discussion of some outcome data. The American Psychological Association Commission on Youth Violence (1993) provided a summary of the risk factors associated with violence and covered promising program approaches, including a chapter on the prevention of adolescent violence (Guerra, Tolan, & Hammond, 1994). In addition, several scholarly reviews have evaluated the empirically demonstrated efficacy of interventions for problems closely related to adolescent violence, such as antisocial behavior (Kazdin, 1987, 1991) and delinquency (Lipsey, 1988; Mulvey, Arthur, & Reppucci, 1993; Ross & Gendreau, 1980). However, despite these valuable efforts, an important information gap remains. This paper is intended to fill this gap. Through an examination of the available empirical evidence on the effects of existing programs directed toward reducing adolescent violence, we identify approaches that seem to work, that do not seem to work, and that have not been adequately evaluated.

By violent behavior, we mean serious and extreme behavior that is intended to cause physical harm to another person. We distinguish this behavior from aggressive behavior, which is often less extreme and more normative and is not necessarily limited to physical harm. From a practical perspective, however, studies have rarely differentiated aggressive behavior from violent behavior, although some have indicated differences in the seriousness of the aggressive acts measured (e.g., pushing and shoving versus using a knife). Thus, we considered studies that focused on either aggression or violence, noting the seriousness of behaviors measured when possible. Because

violence is an extreme form of antisocial and delinquent behavior, often occurs as part of a general involvement in antisocial behavior, and is infrequently studied apart from other types of antisocial behavior, we also considered studies related to serious antisocial behavior and delinquency. We acknowledge that not all antisocial and delinquent behavior, such as use of drugs or burglary, is violent or aggressive, but such behaviors typically are highly correlated with violence and aggression. Also, we confined our focus to violence that is not self-inflicted (e.g., suicide) or carried out as a societally sanctioned behavior (e.g., police and military actions). These forms of violence may be undesirable, but they are of a different nature with regard to impact, causes, outcomes, and need for intervention than the behaviors we examined.

Understanding what works for reducing adolescent violence in the United States today requires more than simply reviewing evaluations of programs to identify those showing statistically significant changes in behavior and then selecting the most valuable technique. The search for solutions hinges on a clearer picture of the scope and nature of teenage violence in this society. It is a complex social problem that takes different forms and often co-occurs with other problem behaviors (Elliott, Huizinga, & Menard, 1989). Therefore, in this paper, we first describe how epidemiological findings can be used to frame an understanding of the problem. We indicate the range and types of needs that interventions should address. In particular, we discuss four types of violence that seem to require different types of intervention programs. Next, we briefly review the risk literature in order to highlight promising targets for intervention. There are a multiplicity of studies and contentions about the causes of adolescent violence and serious antisocial behavior, and a number of risk factors have been implicated. Some studies suggest that the primary cause lies within the individual, others emphasize close interpersonal relationships, others focus on proximal social contexts, and still others stress societal-level influences. This differentiation by level of influence also characterizes intervention programs. Most programs have attempted to impact one or a few risk factors at a given social system level. Thus, we organize our review of the efficacy of specific approaches by the specific level targeted. Following this review, we make suggestions for research, program, and policy actions to improve the effectiveness of antiviolence interventions and to significantly impact the problem of teenage violence.

AN EPIDEMIOLOGICAL PERSPECTIVE ON ADOLESCENT VIOLENCE

The collected data on rates and trends of violence in the United States provide a picture of the nature and scope of adolescent violence, that helps to clarify what types of programs should be offered and which adolescents are most in need. Four basic characteristics emerge from the epidemiological data.

1. Violence is prevalent throughout our society. It is evident from cross-national and historical data that violence is prevalent in the United States, has been prevalent for a long time, and is committed by and toward individuals from all segments of society (Brown, 1979; Rosenberg, 1991; Silverman et al., 1988). In addition, the seriousness and lethality of violent acts are greater in this country than in others and appear to be increasing. Thus, adolescent violence in the United States occurs within a culture in which violence is a relatively common fact of life. This heightened level

of violence also seems to reflect, to some extent, a certain amount of societal ambivalence about violence. One need only consider the continuing debate about the value of corporal punishment, the popularity of violent movies, and the historical tolerance of domestic violence. Few would argue that a mugging is the same type of concern as a spanking or as police subduing a resistant criminal, but all of these are violent acts. Similarly, despite the clear relation of violence in U.S. society to violence portrayed by the media and handgun access, debates about the costs and benefits of controls on these correlating factors continue (Centerwall, 1989; Zimring, 1968). If some forms or levels of violence are acceptable and others are not, discerning the norms about violence may be quite difficult, particularly for children and youth. Furthermore, it is likely that the influence of intervention programs embedded in a culture that tolerates and legitimizes violence will be tainted.

2. Much violence occurs among acquaintances. Contrary to what is often suggested by media coverage and policy discussions, most violence in this country occurs between family and friends (Straus & Gelles, 1986; University of California at Los Angeles and Centers for Disease Control, 1985). Most victims of violence know their assailant (Silverman et al., 1988). For example, in one study of adolescents treated in an emergency room because of injuries inflicted in a violent act, the researchers found that the violent acts occurred most often during arguments with an acquaintance (Hausman, Spivak, Roeber, & Prothrow-Stith, 1989). Thus, programs aimed at reducing adolescent violence may be less effective if they do not address the personal relationship aspect of violence. Also, because violence is often perpetrated in and learned through familial relationships, there is a need for programs that address adolescent violence as part of a larger familial concern. It is not just adolescents, but families, who need intervention to curb their violence.

3. Adolescence is a time of heightened violence. In the United States, the rate and seriousness of the injuries, including lethality from violent acts, are greater for adolescents and young adults than for all other age-groups (Osgood, O'Malley, Bachman, & Johnston, 1989; Silverman et al., 1988). This contrast in risk between youth and other age-groups seems to be increasing over time, and the modal age for violent crimes is decreasing (Steffensmeier, Allan, Harer, & Streifel, 1989; Tracy, Wolfgang, & Figlio, 1990). The heightened rates during adolescence seem to reflect two patterns that require different interventions (Elliott, Huizinga, & Morse, 1986). First, there appears to be some increase in the perpetration of violent acts by a small portion of adolescents who exhibit a general, stable pattern of criminal behavior (Tracy et al., 1990). Second, this elevation also reflects a jump in prevalence due to the time-limited involvement of a large percentage of adolescents (Farrington, 1983; Moffitt, 1993; Tolan, 1988).

Adolescence is also the time of greatest risk for victimization (Centers for Disease Control, 1992a). In one recent study, 50% of boys and 25% of girls reported being physically attacked by someone at school (Centers for Disease Control, 1992b). In our own recent studies, approximately 20% of inner-city adolescent males and their mothers reported a family member being beaten or robbed in the past year (Tolan, 1992), and 45% of urban school children reported witnessing someone being beaten or attacked in the preceding year (Attar, Guerra, & Tolan, 1994). These patterns indicate that violence prevention targeted at adolescents should include efforts to curtail the developing patterned

violence of some adolescents, the temporary age-specific violence that fuels prevalence rates, and the heightened risk of that age-group for victimization.

4. Violence risk differs among adolescents. Among adolescents, those who are poor, live in cities, are male, and are African American are at greater risk for violence than their counterparts (Elliott, Huizinga, & Ageton, 1985; Fingerhut, Kleinman, Godfrey, & Rosenberg, 1991). For example, between 1984 and 1988 gun-related deaths of African American males increased by 100%. Handguns accounted for half of these deaths, and they are now the leading cause of death for adolescent African American youth (Fingerhut et al., 1991). Emerging research on likelihood and pattern of violent acts and victimization by ethnic group also suggests a need to understand violence within culture-specific belief systems. For example, in studies of homicides among African Americans, violence occurred most often in the home, involved the use of a gun, and was precipitated by verbal arguments. African American males were most often killed by friends whereas African American females were most often killed by their husbands. In contrast, homicides among Hispanic males occurred most often in the street and involved the use of a handgun or knife. The homicide usually arose from a verbal argument between acquaintances (not family) or from criminal activity. In addition, gang activity has been shown to account for a greater percentage of homicides of Hispanic youth than African American youth (University of California at Los Angeles and Centers for Disease Control, 1985). Thus, intervention developers may need to consider variations in risk and circumstances of violence among risk groups when targeting populations for intervention and when designing intervention components.

FOUR PATTERNS OF ADOLESCENT VIOLENCE

The data presented in the previous section suggest a need to recognize that not all adolescent violence is of the same form or cause or will be best addressed by the same response (Elliott et al., 1986). Four types of adolescent violence can be distinguished by their apparent causes, the segments of the population most at risk, and the type of interventions they seem to suggest. We label these four types ***situational***, ***relationship***, ***predatory***, and ***psychopathological***. They can be considered as existing on a multidimensional continuum within a biopsychosocial model of cause. The continuum shows differences in (a) the proportion of the population likely to show each type, (b) the likely causes, (c) the synergy of risk factors, and (d) the likely age of onset (See Figure 1). For example, psychopathological violence affects the smallest portion of the adolescent population, is most likely to be evidenced early, has some biological basis, and may be due to a synergy of risk factors.

The first type of violence is related to specific ***situations***. It appears that situational catalysts can both lead to violence and increase the seriousness of the act. Police records, emergency room surveys, and other archival sources show increases in violence rates during extreme heat, on weekends, and during times of social stress independent of individual characteristics (Rotton & Frey, 1985). Similarly, frustration in pursuing planned events and the occurrence of unavoidable accidents or events increase the likelihood of aggressive behavior (Averill, 1983). Social factors such as poverty relate to likelihood of violence perpetration and victimization (Guyer, Lescohier, Gallagher, Hausman, &

Azzara, 1989). Presumably, the higher rates of violence perpetration and victimization among minority youth reflect social discrimination and oppression (Gibbs, 1989; Prothrow-Stith, 1992). The availability of handguns and alcohol and drug use also represent powerful catalysts for adolescent violence (Centers for Disease Control, 1991; Cook, 1991; Goodman, 1986; Greenberg, 1981; Zimring, 1968). These situational factors lead to a substantial portion of the violence in the United States. Thus, the occurrence of violence is not attributable simply to individual tendency or relationship difficulties; situational influences may exacerbate an individual's predisposition toward violence or increase the seriousness of the violence that occurs (Pakiz, Reinherz, & Frost, 1992).

The second type of violence, ***relationship violence***, encompasses a large portion of violence for all age-groups, including adolescents. It arises from interpersonal disputes between persons with ongoing relationships, in particular among friends and family members (Heller, Ehrlich, & Lester, 1983). In some cases the violence erupts as an unusual incident; in other cases it occurs periodically. In many cases, it appears that relationship violence is a familial habit, with the occurrence of violence between parents related to violence toward and among the children (Kratcoski, 1984; Steinmetz, 1986; Straus & Gelles, 1986). For adolescents, dating violence is another example of relationship violence (Bergman, 1992; Roscoe & Callahan, 1985). As can be seen in Figure 1, relationship violence seems to affect a large portion of the adolescent population (about 25%) and seems to have its basis in both social and psychological characteristics (Widom, 1989).

A third type of violence, ***predatory violence***, is that which is perpetrated intentionally to obtain some gain or as part of a pattern of criminal or antisocial behavior. Muggings, robbery, and gang assaults are common forms of this type of violence. Most estimates indicate that about 20% of adolescents commit such acts but that a small portion of this group (5 to 8% of males and 3 to 6% of females) are responsible for most of the predatory violence (Tracy et al., 1990). Thus, much of predatory violence is part of a pattern of serious chronic antisocial behavior that includes this type of violence (Elliott et al., 1989; Faretra, 1981; Tolan & Loeber, 1993; Wolfgang, Figlio, & Sellin, 1972). This pattern represents the most studied and the best understood type of adolescent violence. It seems to be predictable, develops slowly over time with onset in early adolescence, lasts long after adolescence, is dependent on multiple risk factors, and seems to require intensive and early prevention and treatment intervention methods (Huesmann, Eron, Lefkowitz, & Walder, 1984; Moffitt, 1993; Tolan & Loeber, 1993).

The fourth type of violence, ***psychopathological violence***, is rare in prevalence but represents a particularly virulent form. The violence tends to be more repetitive and extreme than other types of violence. Of the four types, it represents the clearest example of individual pathology (Cornell, Benedek, & Benedek, 1987; Mungas, 1983). Research suggests that such behavior is related to neural system and severe psychological trauma (Lewis, Shanock, Pincus, & Glaser, 1979). Apparently, the violent behavior represents a by-product of the pathology rather than situational provocation or an aspect of a developing criminal career. Psychopharmacological and other management methods targeted at carefully identified individuals seem warranted here, whereas these techniques seem to be less useful for perpetrators of other types of violence.

Thus, four types of adolescent violence can be identified that seem to differ in stability, prevalence, causes, and appropriate interventions. However, existing programs typically overlook this distinction between types of violence and focus on some combination of interpersonal and predatory violence. Yet interventions that are effective with one type of violence may not be effective with other types of violence. Also, the optimal timing of intervention may vary with the predominant type of violence. Early adolescence may be the best time to affect the emerging high prevalence of much situational and interpersonal violence, whereas predatory and psychopathological violence may be more effectively treated by earlier intervention. Based on these epidemiological data, it is apparent that the field should account for a wider variety of types of violence and aim to build a portfolio of specific interventions for different types of violence and different populations.

RISK FACTORS FOR ADOLESCENT VIOLENCE

In addition to the directions suggested by the epidemiologic data, effective intervention requires consideration of the specific individual and contextual risk factors that increase the likelihood of violent behavior during adolescence. Unfortunately, few studies have attempted to identify risk factors for adolescent violence separate from its role as part of a general pattern of serious antisocial behavior. However, it is likely that most of the factors that influence violent behavior are also those that influence antisocial behavior. A complete review of the risk factors for serious antisocial behavior can be found in several recent reviews (Guerra, 1997; Kazdin, 1987, 1991; Loeber & Dishion, 1983; Quay, 1987; Rutter & Giller, 1984; Tolan & Loeber, 1993). Two shared conclusions emerge from these reviews. First, it is apparent that a multitude of factors operate in the development of serious antisocial behavior (Tolan & Lorion, 1988). Second, for such behavior to occur there must be individual risk as well as social and environmental risk (Elliott et al., 1989; Guerra, Tolan, Huesmann, VanAcker, & Eron, 1990). However, most interventions tend to focus on changing one promising risk factor, and most emphasize changing only individual (and not social or environmental) characteristics.

Empirically identified risk factors for serious antisocial behavior include ***individual-level characteristics*** such as impaired cognitive functioning and low academic achievement (Moffitt, 1993), poor peer relations skills (Parker & Asher, 1987; Selman et al., 1992), and biases and deficits in cognitive processing (Dodge, 1986; Slaby & Guerra, 1988); ***family-functioning factors*** such as poor parental management methods (Loeber & Stouthamer-Loeber, 1987; Patterson & Stouthamer-Loeber, 1984), low emotional cohesion (Henggeler, Melton, & Smith, 1992; Tolan, 1988), and inadequate family problem-solving and coping skills (Tolan, Cromwell, & Brasswell, 1986); and ***peer influences*** such as association with deviant peers (Elliott et al., 1985; Gottfredson, 1982). In addition, there appear to be ***community and societal influences*** that are mediated through family characteristics (Sampson, 1997) or affect the likelihood of individual, family, and peer influences leading to violence.

Considered separately, these factors provide competing univariate theories that explain little of the variance in adolescent antisocial behavior and are likely to explain less about violence. Even if

considered collectively, this listing of risk factors does not indicate how best to target interventions (Tolan & Thomas, 1995; Tremblay et al., 1992). For targeting adolescent violence programs, a theoretical link must be drawn across these factors that considers the occurrence of violence as dependent on multiple-level influences within a biopsychosocial model. These influences include ***individual factors***; ***close interpersonal relations***, such as with family and peers; ***proximal social contexts***, such as school and neighborhood; and the broader ***societal macrosystems*** (See Figure 2). Figure 2 illustrates this model, which is similar to other ecological models of development (Bronfenbrenner, 1979; Garbarino, 1985).

This biopsychosocial model suggests that the same type of violence can have several causal pathways and that some violence is dependent on the confluence of multiple factors. Interventions can aim to modify individuals directly, or they can attempt to change systems in which the individual develops. The specific relation of the influences at each level, the determination of which influences are most critical for which type of violence, and the determination of which level would be the most effective target remain to be seen.

The risk literature also suggests that different levels of prevention–primary, secondary, and tertiary–may be warranted. Recent catalogings of existing programs suggest that there are many primary and secondary efforts being provided. Primary prevention efforts include manhood development, cultural pride, and general conflict resolution skills training. Secondary prevention efforts include "recruitment" to social and recreational clubs of young adolescents being recruited by gangs and mentoring of high-risk youth. However, most of these programs have not been evaluated and have little or no planned evaluation. In fact, when one limits focus to programs with some empirical evaluation, tertiary-level efforts predominate. This discrepancy between the intention of the majority of programs that exist and of those that have been evaluated is particularly disturbing because the developing prevention literature is beginning to suggest that secondary prevention is a viable and efficient level of prevention for predatory violence (Lorion, Tolan, & Wahler, 1987; Tolan & Guerra, 1994; Tolan & Loeber, 1993).

In addition, the primary, secondary, tertiary distinction imposes conceptual limitations that compromise its applicability to violence and related behavior problems (Tolan & Guerra, 1994). For example, early intervention for aggression may be secondary prevention for violence but tertiary prevention for conduct disorder. Similarly, an educational program to reduce the prevalence of relationship violence may be tertiary prevention if provided to previously violent couples, secondary prevention if provided to couples at risk because they evidence violence-endorsing attitudes, or primary prevention if provided to all high school students in health class. It may be more useful to differentiate programs by whether they focus on a general, selected, or indicated population (Lorion, Price, & Eaton, 1989; Tolan & Guerra, 1994). However, until there is a larger and broader set of empirically viable violence intervention evaluations, it is premature to evaluate the field in terms of the value of primary, secondary, and tertiary efforts. For this review, we instead differentiate programs instead based on the level of the biopsychosocial model on which the program focuses.

Review of Antiviolence Interventions

The primary purposes of this review are to determine which antiviolence programs aimed at adolescents have shown empirical evidence of effectiveness and to judge the relative utility of competing approaches.[2] By "aimed at adolescents" we mean that the program included adolescents as part of the focused population. Given the common definition of adolescence as the period extending from the onset of puberty to the assumption of full adult responsibilities (Fuhrman, 1986), we considered programs that targeted youth between the ages of 12 and 21. Many programs reviewed here were not limited to adolescents but included adolescents among their participants. We excluded those programs that seemed to include a few adolescents incidentally.

To identify programs, we conducted computerized literature searches, contacted colleagues in the field, requested evaluation data from all programs listed in recent published reports, requested copies of relevant conference presentations, and examined recent meta-analyses. We included only those programs that reported some empirical evaluation of effects. The reports had to provide some data that indicated measurement of change in violence or antisocial behavior among participants and had to have demonstrated such change by comparison of a treatment group to a no-treatment control group or to another treatment group (e.g., treatment as usual versus competing approach) or by multiple-baseline comparisons. These inclusion criteria are quite liberal from an empirical perspective, but they resulted in the exclusion of the majority of current programs. Based on our review, we describe helpful, ineffective, and harmful effects of the various programs, although we acknowledge that the latter two outcomes were less likely to be disseminated. In our evaluation of effectiveness we considered the relative strength of design as well as statistical significance and effect size.

Thus, we gave more weight to designs that had multiple measures, good sampling, matched or random assignment of subjects, and clear operational definitions. However, because design quality varied greatly, there remained a qualitative judging of the relative merit of any given study and of each approach based on the available studies.

We have organized our review so that programs targeting variables at the same social system level (Figure 2) are evaluated in the same section. Within each social system level, some programs were offered to all youth in a given setting, and other programs identified individuals based on past history of aggressive, antisocial, or delinquent behavior. Some programs directly geared intervention toward reducing identified risk factors for aggressive or antisocial behavior, and other programs were more general in scope. As mentioned previously, most programs did not specifically focus on violence prevention, and almost none differentiated the type of violence targeted. Therefore, it was impractical to group programs according to whether they targeted antisocial or violent behavior, although we do indicate those programs that had a specific emphasis on violence.

Individual-Level Interventions

Approximately half of the interventions we reviewed focused on the individual and attempted to modify related individual-level risk factors. Such programs typically fall within the general category of therapeutic approaches and are offered in a range of settings, including outpatient or inpatient mental health services, community-based treatment programs, probation services, and correctional facilities. Among these interventions, three types of approaches can be identified. One approach considers adolescent violence and antisocial behavior to be caused by problems in ***psychological processes*** (e.g., emotional, behavioral, and cognitive dysfunction). A second approach, ***social casework intervention***, involves coordination of social and psychological resources to promote life skills and prevent or reduce violence. A third approach involves the use of ***biomedical methods*** and is generally used for treating more severe psychopathological forms of violent behavior.

Psychological Processes

Among programs that consider violent behavior to be a consequence of individual psychological dysfunction, there are four leading intervention methods: (a) individual and group ***psychotherapy*** directed at enhancing the emotional functioning of the adolescent through traditional psychotherapeutic techniques; (b) ***behavior modification*** programs aimed at decreasing violent and delinquent behavior by altering reinforcement contingencies; (c) ***cognitive-behavioral*** techniques focused on changing behavior by changing related cognitive processes and beliefs; and (d) ***social skills training*** programs emphasizing development and practice of discrete behavioral responses.

Psychotherapy. Psychotherapy in this context focuses on changing intrapsychic factors that are presumed to underlie violent behavior. The approach is based on the belief that a dependable, emotionally charged relationship between an individual and a therapist promotes change within the individual through insight into his or her past and exploration of new ways of behaving, through reparation of damaged self-esteem, or through both processes. In group therapy, the processes of individual therapy are augmented by reassurance, feedback, vicarious gains by peers, and leadership opportunities. Although this approach is one of the most difficult interventions to evaluate because treatment methods are often not specified or applied consistently, the accumulated literature indicates that psychotherapy alone is not an effective intervention strategy for preventing or mitigating serious antisocial and violent behavior. Evaluations of several programs for institutionalized violent offenders have reported minimal effects within the institutional setting as well as negative effects at postrelease follow-up (Guttman, 1976; Hartstone & Cocozza, 1983). One widely used psychotherapeutic approach has been the Interpersonal Maturity Classification (I-level) program. However, the various trials of this program have been poorly evaluated and its effect on serious delinquent and violent behavior has not been determined (Reitsma-Street, 1984). As Kazdin (1991) noted, comparisons of supportive and emotional-process-oriented psychotherapy with behavioral and cognitive approaches have indicated that such psychotherapy is not advised with seriously antisocial and violent youth. However, some evidence exists that psychotherapy combined with intensive case

management, social skills training, or educational-vocational services can be effective in reducing outcomes related to delinquency.

In one such program, Project CREST, teenage serious offenders received psychological counseling by volunteer college students in addition to traditional probation services (Lee & McGinnis-Haynes, 1978). When compared to a randomly assigned group who had received probation services alone, the CREST group displayed a 79% drop in "misconduct" whereas the probation-condition controls showed a drop in misconduct of only 4%, and these differences were maintained at the 24-month follow-up. In another combined approach, Shore and Massimo (Massimo & Shore, 1963; Shore & Massimo, 1966, 1969, 1973) found that individual psychotherapy in conjunction with a comprehensive vocationally oriented treatment program over 10 months resulted in reduced delinquent behavior for the 10 treatment group participants. At the 10-year follow-up, only three of the treatment group had been arrested compared to eight controls (Shore & Massimo, 1966, 1969, 1973). Although these studies are encouraging, the majority of evaluations of psychotherapy for individuals displaying antisocial behavior are not. The evidence does not support the use of psychotherapy alone as a strategy to prevent or reduce any type of serious antisocial behavior including violence.

Behavior modification. Rather than exploring the underlying causes of maladaptive behavior, behavioral approaches focus on changing behavior through such techniques as direct reinforcement, contingency contracting, and modeling. This approach is appealing because the techniques can be implemented by a variety of professional and paraprofessional service providers without highly specialized training. For example, contingency contracting has become a mainstay of many probation departments. Unfortunately, most evaluations of programs of this type have focused on measuring how well the probation officers have mastered the technique rather than on the effects of their efforts on participants' behavior.

One of the most common problems with clinic-based behavior modification programs has been that treatment effects do not persist after reinforcement contingencies are withdrawn and often there is a lack of generalization of results across settings (Kazdin, Bass, Siegel, & Thomas, 1989). One response to these limitations has been community-based behavior modification programs. It was believed that anchoring such programs in the day to day lives of participants might improve treatment impact and persistence. One of the first controlled designs was reported by Schwitzgebel and colleagues (Schwitzgebel, 1964; Schwitzgebel & Kolb, 1964). Using a unique approach as part of a street-corner project, they recruited and paid male delinquent multiple offenders to participate in discussions with street-corner workers that were intended to recruit them out of gangs and into prosocial community activity. Their attendance at the meetings with street-corner workers and the discussion content were then shaped using a variable reinforcement schedule. After one year, treatment subjects showed improvement in both attendance and discussion content. In turn, attendance at meetings was effective in reducing arrests by one-half as compared to a matched control group. The treatment group also had significantly fewer arrests and significantly less time incarcerated than the control group for up to three years following the intervention.

Another intervention that relied heavily on behavioral principles was the volunteer Buddy System program (Fo & O'Donnell, 1974). Adolescents with a range of academic and behavioral problems were referred to this program. Some participants had been involved in serious delinquent activity, and others had no prior arrest record. Paraprofessional community volunteers participated in a variety of activities with the youth and implemented an individualized behavior modification program. Compared to a no-treatment control group, the more seriously delinquent youth who took part in the program evidenced a decrease in subsequent arrests over a 2-year follow-up period. However, an unexpected finding was that the youth in the program who had no prior arrest records evidenced an increase in arrests for serious offenses.

Taken together, these studies provide some support for behavior modification approaches for treating serious offenders and suggest that such methods might be successful for violent offenders. However, there is also evidence of increases in serious offenses among nonoffenders following some behavior modification programs. More research is needed to determine the specific impact of behavioral techniques on reducing adolescent violence. In particular, it is important to determine the impact of behavioral methods alone as well as the incremental benefits achieved by incorporating behavioral techniques into other intervention methods.

Cognitive-behavioral interventions. This approach attempts to lessen serious antisocial and violent behavior by changing the social cognitive mechanisms linked with such behavior. A major assumption is that changing internal factors (i.e., cognition) as opposed to external factors (i.e., reinforcement contingencies) will promote generalization of what has been learned to everyday situations. Most cognitive-behavioral interventions include training participants in one or more of the following areas: (a) cognitive self-control; (b) anger management; (c) social perspective taking; (d) moral reasoning; (e) social problem solving; and (f) attitude change. Each of these areas, or components of cognitive-behavioral intervention, has been identified as a significant predictor of aggressive and antisocial behavior. The extant data suggest some support for single-component programs, and more promising results have been noted for multi-component programs. Still, most programs have focused on antisocial behavior in general, although a few programs have specifically targeted aggressive and violent behavior.

Among single-component programs that have been empirically evaluated, there is little support for the efficacy of cognitive self-control and anger management programs. In particular, short-term anger control programs for seriously aggressive adolescents have not produced sustained effects on impulsivity or significant effects on behavior (Bowman & Auerbach, 1982; Dangel, Deschner, & Rapp, 1989). In a review of anger control studies, Feindler (1987) concluded that although these skills could be mastered, outcome studies did not provide evidence that they led to any significant effects on behavior. The weakness of this approach is puzzling given the well-documented relation between aggression and impulsivity and anger (Moffitt, 1993). However, it may be that such training is necessary but not sufficient to change behavior. Further, anger management may be more helpful for decreasing situational and relationship violence than predatory or psychopathological violence.

In contrast, some support has been provided for single-component programs focused on increasing social perspective-taking skills, moral reasoning, and social problem-solving skills. For example, Chandler (1973) randomly assigned 45 male juvenile serious offenders and 45 nonoffender counterparts to one of three treatment conditions: no-treatment control, attention-only control, and social perspective-taking/role-taking training. Youth in the role-taking training group met together for one-half day per week over a 10-week period and practiced various role-taking skills. Compared to both groups of control subjects, intervention participants showed significant improvements in role-taking skills and subsequent reductions in serious delinquent behavior at the 18-month follow-up.

Arbuthnot and Gordon (1986) reported similarly promising effects for 7th- through 10th-grade "behavior disordered" high school students participating in an intervention designed to improve moral reasoning. Intervention students, who took part in small-group discussions about a variety of moral dilemma situations for 16 to 20 weeks, improved in moral reasoning abilities and had fewer behavior referrals for official disciplinary action and fewer police contacts than control students. One-year follow-up data indicated that intervention and control students continued to diverge on outcome measures, although no students in either group had experienced recorded police or court contacts during the previous year.

Social problem-solving interventions train participants to follow a sequence of discrete steps when solving common social problems. These interventions have been quite popular as primary prevention programs, and some problem-solving programs for seriously aggressive youth have been offered in treatment and correctional settings. In one test of the efficacy of this approach, Kazdin, Bass, Siegel, and Thomas (1989) randomly assigned 112 children and young adolescents (under age 14) who had been referred to a diagnostic center for treatment of antisocial behavior to one of three intervention conditions: social problem-solving skills training, social problem-solving skills training plus in-vivo practice, and client-centered relationship therapy. Participants in the social problem-solving skills training program intervention took part in 25 individual sessions designed to teach problem-solving skills in generating alternative solutions, means-ends and consequential thinking, and perspective taking. The condition of problem solving with in-vivo practice involved the same 25-session procedure but the addition of a number of therapeutically planned activities outside of the sessions. Participants in both problem-solving interventions showed significantly greater reductions in externalizing behavior one year after treatment than did the participants who received relationship therapy, based on child, teacher, and parent reports of behavior. The participants who received training plus in-vivo practice showed higher prosocial and lower aggression scores than those who received only social problem-solving training.

As the Kazdin study illustrates, the efficacy of social problem-solving programs may be tied to the fact that they typically are more comprehensive in scope than other cognitive interventions and frequently include training in self-control, anger management, perspective taking, and attitude change (Kazdin, Esveldt-Dawson, French, & Unis, 1987; Kendall, Reber, McLeer, Epps, & Ronan, 1990). For example, in a similar multi-component cognitive-behavioral intervention anchored in a

social problem-solving framework, Guerra and Slaby (1990) randomly assigned 120 juvenile offenders incarcerated for violent crimes to a cognitive-behavioral intervention, an attention-control group, or a no-treatment control group. The cognitive-behavioral intervention used the Viewpoints Training program, a 12-session small-group training program focused on improving social problem-solving skills, enhancing perspective taking, increasing self-control, and changing beliefs and attitudes about violence (Guerra & Panizzon, 1986; Guerra, Moore, & Slaby, 1994). Following intervention, only the treatment participants showed decreases in residential staff ratings of aggressive behavior, and these decreases were related to changes in the targeted social-cognitive variables.

A number of comprehensive cognitive-behavioral programs that directly target violence prevention have been developed recently. These programs are currently being implemented in a variety of school settings. They include the antiviolence curriculum developed by Prothrow-Stith (1987), the Second Step program of the Committee for Children in Seattle, and the Washington Community Violence Prevention Program (Gainer, Webster, & Champion, 1993). However, although reports of these programs have indicated gains in targeted cognitive skills and beliefs, most programs have not included any appropriate measures of behavioral outcomes. Therefore, their utility as antiviolence interventions cannot be ascertained at this time.

Social skills training. Social skills training programs emphasize the development and practice of discrete behavioral responses to increase prosocial responses in problematic social situations. They are often differentiated from cognitive-behavioral programs by their emphasis on behavioral skill development rather than on changes in cognition or cognitive skills, although significant overlap is often evident (Tolan, Pentz, Davis, & Aupperle, 1991). Social skills training intervention involves the use of discussion, modeling, rehearsal, and feedback for teaching behaviors believed to contribute to prosocial engagement (e.g., communication, eye contact, cooperation, and sharing) and for teaching general interpersonal skills. During the 1980s, social skills training for aggressive and delinquent youth became increasingly popular, and a number of programs were conducted in school and institutional settings (Goldstein & Pentz, 1984). Many exploratory studies suggested that social skills training was a promising approach, but these studies were limited because of their reliance on small samples, use of nonspecific techniques, and inadequate controls (Goldstein, 1986; Henderson & Hollin, 1983; Tolan et al., 1991). More carefully designed studies that targeted violence specifically and also antisocial/delinquent behavior were subsequently conducted, but they have reported mixed results regarding the efficacy of this method.

Perhaps the most well known social skills program aimed directly at reducing violence among adolescents is that of Goldstein and his colleagues (Glick & Goldstein, 1987; Goldstein, Sherman, Gershaw, Sprafkin, & Glick, 1978). The program, Aggression Replacement Training, is conducted in small-group sessions by paraprofessionals. It contains three main components, each lasting for at least 10 weeks: (a) structured learning training, a 50-skill curriculum of prosocial behaviors; (b) anger control training; and (c) moral education. However, although this program has been in existence since at least 1978 and is part of a packaged curricula, the evaluation of its effects has been

minimal and results are not promising in terms of reductions in aggressive and violent behavior (Goldstein et al., 1978).

In a more recent example of a social skills program targeting adolescent violence, in this case among the African American population, Hammond (1991) developed a set of culturally sensitive videotapes that demonstrate effective behavioral responses to common social problems that have sometimes provoked aggression and violence. In particular, problems involving relationship and situational violence among family members and acquaintances are reviewed. The videotapes are used as a springboard for small-group discussion, modeling, and rehearsal of prosocial behavioral responses. In one preliminary outcome study, participants in the social skills training had fewer referrals to juvenile court and were rated by teachers and independent observers as showing more improved conflict-resolution skills than controls, although the evaluation was compromised by nonrandom assignment to groups.

It is interesting to note that this particular type of intervention, social skills training, seems quite appropriate to situational and relationship violence. Other recent reports have also provided positive preliminary outcome data on the use of social skills training for reducing relationship violence. For example, Naylor, Tolan, and Wilson (1988) reported on a program that targeted relationship violence indirectly by using education, role-play, and communication skills development training to affect date rape and other less extreme interpersonal coercive behavior. In this program, 37 college student volunteers who participated in a 90-minute educational workshop showed, at a 3-week follow-up, a decrease in use of coercion and violence in dating compared to students in a no-treatment control group. These preliminary findings suggest some promise for social skills training in impacting this type of violence.

Like social skills training programs that have focused on violence, those that have focused on antisocial and delinquent behavior have yielded mixed results. In some studies with adjudicated delinquent youth, program participants showed improvements in the targeted social skills but not in targeted behaviors (Long & Sherer, 1984). In contrast, other studies with similar populations have demonstrated both social skill and behavioral gains (Spence & Marziller, 1979). A comparison of studies reported in the literature reveals that the most successful programs have been those that were most comprehensive in scope. For example, in the Student Training Through Urban Strategies program, high-risk youth were enrolled in a combined English and social studies class to increase their legal and social awareness and to build enthusiasm for learning (Gottfredson, 1987). Over the course of one year, five units were covered, each focusing on issues related to a major societal institution. The curriculum focused on providing information about human relations, legal issues, society and the family, job markets, and skills in developing life goals. Self-reports and official contacts indicated that the program led to improved grades, greater involvement in school, and decreased delinquent behavior for both middle school and high school participants. The program's success highlights the importance of providing programs that are comprehensive in scope and grounded in a practical orientation.

Social Casework

Social casework combines individual psychotherapy or counseling with close supervision and coordination of social services. Although this approach is a mainstay of juvenile justice and social services, the literature indicates that it is not effective in preventing or mitigating serious antisocial and violent behavior, even when services are carefully delivered and comprehensive.

One of the earliest and most well-known applications of the casework model was the Cambridge-Sommerville Project conducted in the 1930s (McCord, 1978; Powers & Witmer, 1951). In that study, 325 high-risk predelinquent boys were randomly assigned to a treatment or control group. Those in the treatment group received counseling, referral to services, and casework as needed. On average, they were visited twice a month by a social worker for a period of 5-1/2 years. Although initial effects of the program seemed promising, long-term outcomes indicated significant negative effects, including higher rates of alcoholism, unemployment, marital problems, and even death among the treatment group.

One possibility is that these negative effects were related to the limited intensity of the intervention and casework services. This concern gave rise to a number of more intensive and comprehensive programs that involved fewer cases per worker and provided participants with increased assistance with psychological, educational, legal, and social problems. In fact, there have been several attempts to evaluate intensive casework. For example, Weisz and colleagues (Weisz, Walter, Weiss, Fernandez, & Mikov, 1990) provided a careful evaluation of an intensive casework approach–the Willie M program in North Carolina. This program was a court mandated coordination-of-services effort to address the problem of violent and assaultive youth. The core of the program was intensive case management, which emphasized matching treatments to individual youths. A range of treatments were prescribed including inpatient and outpatient psychotherapy, family therapy, supervised living, and vocational placement. However, when participants were compared to individuals who had been qualified as fitting the certification criteria to be Willie M class members but who had received very little treatment, no significant differences were seen in the rate of later arrests. Other evaluations of intensive casework have produced similarly negative findings (e.g., Berleman & Steinburn, 1971; Moore, 1987; Schwitzgebel & Baer, 1967).

Biomedical Methods

Only minimal attempts have been made to impact adolescent violence using pharmacological agents. Most biomedical interventions have focused instead on serious antisocial behavior or on the related psychiatric diagnosis of conduct disorder (Kruesi & Johnson, in press). As with many other intervention programs, serious design flaws limit the interpretability of results. Overall, the accumulated literature presents a picture of mixed efficacy, with the most common finding being no effect, although pharmacological agents may be helpful in more extreme cases related to organic disorders.

For example, Lefkowitz (1969) tested the efficacy of diphenylhydantoin on the disruptive (violent) behavior of incarcerated delinquents. From the 134 eligible boys at a residential treatment facility, the 50 who scored highest on indices of anger and impulsivity were chosen to participate in the study. From this group, 25 cohort pairs were formed and randomly assigned to the treatment or placebo condition. Treatment subjects received 200 mg of diphenylhydantoin for 76 days. Following the treatment period, all participants were assessed on 11 psychiatric and behavioral measures related to aggressive and disruptive behavior. Although both treatment and placebo groups showed reductions in aggressive behavior the placebo group manifested significantly lower frequency of aggressive and disruptive behaviors than the treatment group.

More recently, Platt and coworkers (Platt, Campbell, Green, & Grega, 1984) reported that lithium carbonate plus haloperidol was effective in reducing symptoms of hospitalized conduct-disordered children and early adolescents (under age 14). Using a random assignment, double-blind procedure, they found improvements in psychiatrist ratings but not in staff or teacher behavior ratings.

There is also some evidence that pharmacology can be helpful with aggression related to brain damage. Propranolol, an adrenergic blocking agent, has been effective in reducing episodic loss of control (Williams, Mehl, Yudofsky, Adams & Roseman, 1982), and case evidence has shown that it has been effective in treating such a problem in two adolescents with histories of psychological neglect and trauma (Grizenko & Vida, 1988).

Utility of Individual-Level Interventions

With regard to individual-level interventions, consistent evidence indicates that general methods such as psychotherapy and social casework are ineffective. There is some evidence that behavior modification, cognitive-behavioral training, and social skills training programs are effective in reducing antisocial behavior and, in some cases, aggression and violence. Across individual-level intervention approaches, program impact is enhanced when interventions are multidimensional and provide information and training in skills that are readily integrated into daily activities.

Close Interpersonal Relations Interventions

As shown in Figure 2, in addition to individual factors, close interpersonal relations also influence adolescent violence. Numerous risk studies have demonstrated a relation between adolescent antisocial behavior and family factors (see Loeber & Stouthamer-Loeber, 1987; Tolan et al., 1986) or peer relations (see Agnew, 1990; Patterson & Dishion, 1985). Although fewer studies have documented the impact of family and peers on adolescent violence, there is a growing literature in this area. For example, evidence exists that intrafamilial abuse is a common form of violence and that it predicts subsequent adolescent aggression and violence (Straus & Gelles, 1986). Other recent studies have linked certain family characteristics to predatory adolescent violence (Bank & Chamberlain, 1993; Gorman-Smith, Tolan, Zelli, & Huesmann, 1996; Henggeler et al., 1993). A number of corresponding interventions have been conducted with families and peers to impact

antisocial behavior, but few of these studies have focused specifically on violence.

Family Interventions

Family interventions have repeatedly shown efficacy and effectiveness for reducing antisocial behavior and appear to be among the most promising interventions to date (Dumas, 1989; Hazelrigg, Cooper, & Borduin, 1987; Henggeler, 1989; Tolan et al., 1986; Tolan & Mitchell, 1989). A broad range of theoretical underpinnings and techniques are represented in these interventions. Three main approaches that have shown effects in decreasing serious delinquent behavior, even among violent delinquents, can be identified. Although overlapping extensively in intervention activities and theoretical underpinnings, these three approaches differ in their theory of the relation of family change to behavior and their theory of how that change mediates other influences on behavior.

The first method, exemplified by Patterson and his colleagues (Patterson, 1982, 1986; Patterson, Chamberlain, & Reid, 1982; Patterson & Reid, 1973; Patterson, Reid, & Dishion, 1992) and Wahler and Dumas (1987, 1989), focuses on behavioral parent training to decrease negative parenting and the "coercive" style of interacting that promotes child aggression and later delinquency. In addition to demonstrating that these family interventions result in corresponding decreases in children's antisocial behavior, both groups have expanded this family approach to evaluate how environmental constraints may limit intervention effects (Miller & Prinz, 1990). For example, Wahler and Dumas (1989) reported that the overwhelming demands single mothers often face seem to produce relapses to old child-rearing methods even after new, more effective methods have been learned and used. Patterson, DeBaryshe and Ramsey (1989) investigated how family functioning mediates environmental risk factors such as poverty. They have found that familial use of coercion mediates the impact of socioeconomic problems on antisocial behavior. Their results suggest that modifying family functioning can enable the family to withstand other influences as well and reduce risk. However, at the same time there appears to be evidence that external stress can limit the effectiveness of family interventions (Tolan, 1988; Wahler & Dumas, 1989).

The second method is exemplified by Szapocznik and colleagues in work developed with adolescent drug abusers (Szapocznik & Kurtines, 1989, 1993; Szapocznik, Kurtines, Santisteban, & Rio, 1990; Szapocznik, Scopetta, & King, 1978) and applied by others to individuals exhibiting antisocial behavior (Alexander, 1973; Tolan & Florsheim, 1991; Tolan & Mitchell, 1989). This work developed from the tradition of Minuchin's Structural Family Therapy (Minuchin, 1974). The approach presumes that parent management strategies reflect family organization. In addition to poor discipline practices, this approach considers that emotional disengagement, ineffective family problem solving, and unsatisfying interactions are important contributors to antisocial behavior (Tolan et al., 1986; Tolan & Mitchell, 1989). Thus, in addition to parenting methods, other family characteristics such as emotional cohesion and shared beliefs are targets of intervention (Henggeler et al., 1993; Gorman-Smith et al., 1996). This approach also assumes that although the influence of some aspects of family functioning (and therefore some aspects of intervention programs) are consistent across ethnic and socioeconomically diverse groups, others vary. Therefore, general

interventions can be developed, but some components must be tailored to be culturally appropriate (Darling & Steinberg, 1993).

The third method, multisystemic family therapy, was developed by Henggeler and his colleagues (Henggeler, 1989; Henggeler & Borduin, 1990; Henggeler et al., 1993; Henggeler et al., 1986). In addition to focusing on intrafamilial problems such as parent practices and family cohesion and organization, interventions following this approach aid the family in developing skills to address external demands. This approach has been evaluated with several groups of serious delinquents. For example, in a study by Henggeler et al. (1993), the 96 participants had an average of 3.5 prior arrests and 10 weeks of prior incarceration. Fifty-four percent had at least one arrest for violent crime. In a random assignment comparison of multisystemic therapy to usual probation services, subjects assigned to multisystemic therapy had fewer subsequent arrests and fewer weeks of subsequent incarceration, and they reported less delinquent behavior. Related increases in family cohesion were noted for the multisystemic-treated families. In addition, the cost per client for multisystemic therapy was calculated to be $2,800 versus over $16,000 for one year of incarceration. Still, it is important to recognize that this study and others confounded intensity, caseload level, and other intervention parameters with condition, with the result that it is unclear what produced the effects found. Nevertheless, multisystemic family interventions seem to be valuable for reducing delinquency when compared to treatment as usual.

Notably, when family interventions have been compared to problem-solving skills education (Foster, Prinz, & O'Leary, 1983), individual client-centered and psychodynamic therapy (Parsons & Alexander, 1973), and group therapy (Stuart, Jayratane, & Tripodi, 1976), outcome data have favored family therapy. It also should be pointed out that all of the successful family interventions reported in the literature have combined behavioral parent training techniques with other intervention components based in family systems theory that are designed to improve family relations (see Tolan & Mitchell, 1989, for a summary of these concepts). Although there is evidence that positive effects can result from parent training alone (Patterson et al., 1982), the generalization and maintenance of these effects are often not attained or they dissipate quickly (Wahler & Dumas, 1989). The existing data support the inclusion of both parent training and family relationships skills in family intervention programs.

Peer Group Interventions

The primary emphasis of peer group interventions differs from that of individual-level interventions such as cognitive-behavioral or social skills. Peer group interventions emphasize modifying antisocial behavior by changing the nature of the peer group interaction, particularly in terms of shifting peer group norms, promoting youth involvement with prosocial peers, and redirecting the activities of antisocial peer groups and juvenile gangs. To date, there is little evidence that this type of approach is effective in reducing antisocial or violent behavior, and some programs have demonstrated negative effects. Recently, peer mediation training programs have been developed, but empirical studies of these programs are almost nonexistent. Peer group interventions can be divided

into three types of programs in terms of their focus: (a) those that focus on ***shifting peer group norms*** to increase peer pressure for prosocial rather than antisocial activity; (b) those that emphasize ***preventing association with antisocial peers, redirecting peer group behavior*** toward prosocial activities, or both; and (c) those that focus on involving youth in conflict resolution with peers, known as ***peer mediation and conflict resolution*** programs.

Shifting peer group norms. The consistent finding that peers exert an important influence on adolescent behavior and that peer delinquency is a major risk factor for serious antisocial behavior suggests that shifting peer group norms in a direction that creates positive peer pressure should decrease antisocial behavior and violence (Agnew, 1990). Accordingly, interventions have attempted to create a "positive peer culture" that counteracts support for antisocial behavior and alters attitudes supporting such behavior (Gottfredson, 1987; Knight, 1970; Pilnick et al., 1967).

One of the most common methods has been Guided Group Interaction (GGI), a program designed to restructure peer interactions to increase conformity to prosocial norms (Empey & Erickson, 1974; Gottfredson, 1987; Gottfredson & Gottfredson, 1992; Stephenson & Scarpetti, 1969). A number of empirical studies have evaluated this program. Overall, it has not been effective in community-based treatment with delinquent youth (Pilnick et al., 1967), in residential therapeutic settings (Knight, 1970), or in juvenile institutions (Empey & Erickson, 1974; Gottfredson, 1987). In addition, some of the more carefully controlled studies conducted in high school settings have shown that GGI had negative effects on attitudes toward school and self-reported and official contact measures of delinquency (Gottfredson, 1987).

A variation of the positive peer culture approach is to mix prosocial peers with at-risk youth (Feldman, 1992; Feldman, Caplinger, & Wodarski, 1983). Feldman's (1992) evaluation of the "St. Louis Experiment," although providing more evidence of the ineffectiveness of GGI, did reveal some important design features that are useful in attempting to foster positive peer influence. This intervention contrasted traditional social work and guided group methods with a group-level behavior modification program and with a minimal treatment control using randomly assigned subjects deemed at-risk due to high rates of conduct problems. In addition, the study varied whether nonreferred (prosocial) peers were integrated with the at-risk subjects. The behavior modification group had significantly better outcomes than the guided group interaction, but its outcomes were not better than those of the minimal treatment control.

Interestingly, more fine-grained comparisons revealed that antisocial behavior decreased in the integrated groups but not in the delinquent-only groups: 91.3% of the boys in the integrated groups showed some decrease in antisocial behavior, whereas only 50.9% in the nonintegrated groups did so. An overwhelming proportion of the variance in behavior change of participants was explained by the extent of change in other group members' stated beliefs and behavior. This finding suggests that changes in group norms and behavioral conventions can affect individual risk. Apparently, the nonreferred prosocial youth maintained their prosocial attitudes and behavior in the mixed groups, and their outlook boosted the changes in the referred youth. Integrating youth holding antiviolence

attitudes with at-risk youth affected the latter but did not seem to adversely affect the prosocial youth. Thus, it may be that integrating peers holding prosocial norms with at-risk youth is effective, whereas attempting to change delinquents' norms directly is not.

Preventing association with antisocial peers and redirecting group behavior. Research has shown that involvement in serious and violent antisocial behavior rises as gang involvement increases and falls as it diminishes (Thornberry, Krohn, Lizotte, & Chard-Wierschen, 1993). Most related intervention efforts have focused on decreasing recruitment of new members into gangs (Klein, 1971) and on redirecting gang members toward more prosocial community activities (Miller, 1962; Thompson & Jason, 1988). However, such studies are marred by serious methodological flaws, and they do not support the utility of such interventions (Miller, 1975). For example, Klein (1971) made available athletic and social events and academic tutoring to 800 members of four gangs. However, as these activities increased the gang members' time together, their increased interaction apparently led to more criminal behavior. Such results are consistent with the results of the Feldman (1992) study discussed previously. In a subsequent intervention, components were designed to provide social, educational, and vocational opportunities without promoting gang members' time together. This intervention did result in reduced membership in gangs, which led to a lower total number of crimes. Thus, although gangs have been identified as a significant factor in adolescent violence, very few data have supported the efficacy of interventions aimed at redirecting gang activities or reducing the recruitment of new gang members.

Peer mediation and conflict resolution programs. Programs that train peers to serve as mediators of disputes and train youth in conflict resolution skills have become increasingly popular since the mid-1980s (Jenkins & Smith, 1987). However, despite the soaring popularity of this type of intervention at the elementary school, middle school, and high school levels, and a number of laudatory "testimonials" from teachers and other participants (Bergman, 1989; Casey, Roderick, & Lantieri, 1990), we could not locate a well-designed empirical study that evaluated behavioral outcomes with adolescents. Although peer mediation has intuitive appeal, particularly in terms of reducing situational and interpersonal violence, its efficacy has simply not been determined.

Utility of Close Interpersonal Relations Interventions

With regard to interventions focusing on family and peers, substantial support exists for family interventions but relatively little support exists for peer group programs. Family therapy and related interventions that foster improvements in parenting skills and family relationship characteristics can decrease serious delinquent behavior even among violent delinquents. Studies also suggest that family therapy is more effective than individual interventions of most types. In contrast, there is little evidence that interventions focused on peer relations are effective in decreasing antisocial or violent behavior, and some programs have been found to have negative effects.

Proximal Social Contexts Interventions

According to the model described in Figure 2, a third level of influence on adolescent violence stems from factors related to key proximal social settings that impact development. Interventions at this level generally focus on modifying setting characteristics that may promote serious antisocial or violent behavior directly or indirectly or may interfere with the development of prosocial behaviors (Anson et al., 1991). The distinguishing feature of setting-based interventions that differentiates them from individual-level or close interpersonal relations interventions is their focus on changing the organizational influences on behavior rather than changing individuals or close personal relationships directly. For example, although individual-level programs are often implemented in school settings, their primary focus is on changing the individual rather than on changing school setting factors related to antisocial and violent behavior.

The proximal social settings most frequently targeted for change are schools, neighborhoods, and residential institutions. Within these settings, three intervention approaches can be identified: (a) ***improving the attitudes, skills, and practices of those working with adolescents*** (such as improving teachers' behavior management strategies in the classroom); (b) ***improving adolescents' motivation*** (for example by increasing the predictability of the rewards in the setting); and (c) ***modifying the organizational climate*** or operational structures of the setting (such as by involving parents and teachers in solving student problems).

School Programs

Unfortunately, the vast majority of interventions designed to alter school settings by changing teacher behavior management strategies, student motivation, or school organizational structures and atmosphere have been aimed at elementary schools or preschools and have not included reducing serious antisocial or violent behavior as explicit outcome interests (see Durlak, 1992; Zigler, Taussig, & Black, 1992, for reviews). Although some programs have measured changes in antisocial behavior, we could locate only one set of studies that included specific measures of violence, and those studies found no effect of the intervention on violence (Hawkins, Doucek, & Lishner, 1988; Hawkins & Lam, 1987). All we can do is suggest what seem to be some promising avenues for future intervention research. Approaches that seem to warrant further evaluation include those that increase involvement of high-risk students in alternative classes that provide continuity and structure and those that focus on shifting organizational characteristics, specifically increasing parental involvement in schools and increasing parents' access to teachers (see Bry, 1982; Gottfredson, 1987).

Changing teacher practices. Although numerous researchers have provided documentation of effective teacher practices and have discussed their potential utility in preventing violent and antisocial behavior (e.g., Brophy & Good, 1986; Goldstein, 1992), only one series of studies provided a test of the direct effect of teacher behavior management strategies on antisocial and violent behavior (Hawkins et al., 1988; Hawkins & Lam, 1987). In the earliest study (Hawkins &

Lam, 1987), teachers in seventh-grade classrooms in five schools received instruction and ongoing supervision in monitoring classroom activity, use of cooperative learning methods, and promoting interactive learning. The intervention resulted in improved student academic performance and reduced numbers of disciplinary actions taken against students, but it did not affect delinquency. In a later study with low achieving students in which violent behavioral outcomes were assessed, the program did not significantly reduce violent behavior among intervention participants. However, more recent studies by this group suggest that interventions focused on teacher practices may delay the onset of delinquency in pre-adolescents, which should decrease violence prevalence (Hawkins et al., 1992).

Changing student motivation. Some school setting efforts have focused on enhancing the predictability of rewards, improving communication among students, teachers, and parents, and improving the monitoring of students to prevent at-risk youth from developing serious antisocial behavior (Bry & George, 1980). For example, Bry (1982) reported the results of a well-designed middle school study that targeted seventh graders who were exhibiting delinquency risk characteristics such as low achievement, disregard for rules, and low bonding to school and family. The intervention attempted to reduce the at-risk students' cynicism and increase their sense of competence by increasing the tie between their actions and the consequences of those actions. Unlike many programs, this intervention lasted for 2 years and included parent-, teacher-, and student-focused components to change the motivation system in the school. Careful monitoring and recording of behaviors publicly indicated to be desired and undesired were carried out. Students' performance was reviewed in groups that met each week. At the one-year follow-up, more of the intervention group than controls had been employed and fewer reported regular substance use. Members of the intervention group had a lower incidence (but not prevalence rate) of self-reported criminal acts and fewer arrests (10% of intervention subjects versus 30% of controls). These effects did not vary as a function of race, age, gender, socioeconomic status, or initial achievement level. This study suggests that specific reward structures and careful monitoring of behavior can reduce antisocial behavior. Although the utility of such methods as specific violence prevention strategies has not been tested, the risk factors targeted (i.e., inconsistent rewards, low monitoring) have been implicated in the etiology of violence, and programs such as that reported by Bry (1982) could be expected to impact violent behavior.

Changing organizational structures. A small number of organizational change programs in middle school and high school settings have been empirically evaluated. Although these programs vary slightly in emphasis, they generally try to increase student and parent involvement and set up programs to meet students' special needs. Overall, these programs have shown some promise in changing behaviors that increase risk for antisocial behavior and in reducing some types of antisocial behavior. However, the effects appear to be largest for general population samples rather than for those at highest risk (Felner & Adan, 1988), and some studies have found no effects on delinquency (Gottfredson, 1986). In addition, these programs appear to be more effective in middle schools than high schools. For example, Gottfredson (1987) evaluated a school organizational change program by randomly assigning eight middle schools and six high schools to treatment or control groups. The

treatment program aimed to increase staff, parent, and student sharing of decision-making, introduced cooperative learning, set up prescriptive teaching, and provided an affect development curriculum. Notably, only the decision-making and cooperative learning methods were judged to have been adequately adopted by the participants to be evaluated for effects. In addition to increasing achievement and attendance, the intervention reduced delinquency, although the effects were strongest in the middle schools. Thus, changing school organization for high-risk children seems promising as a general delinquency prevention strategy that should reduce violence prevalence (Payne, 1991).

Community and Neighborhood Programs

Perhaps the most intuitively appealing antiviolence interventions for adolescents occur at the level of the community setting. In terms of sheer numbers of programs offered, community programs are certainly among the most popular approaches (Cohen & Wilson-Brewer, 1991). However, empirical evaluations of such programs are extremely limited. We could find only a handful of studies with acceptable methodologies, and none provided a direct evaluation of the effects on violence. These studies varied in emphasis in much the same fashion as the school setting interventions.

Changing worker practices. Despite the popularity of programs to change community worker involvement with at-risk youth, we were able to find only a single empirical evaluation of this approach. In that study, Tolan, Perry, and Jones (1987) reported on a multiple baseline comparison of a program designed to change court-involved agents' orientation to working with first offenders and to coordinate the various agencies' efforts. Prior to the onset of the program, the court's work had been marked by agency competition, turf defending, and uncooperative relationships between the sheriff's office, police, probation, schools, and the mental health clinic. A 2-day program was designed that included contributions from facilities and personnel from each agency and provided a multi-component information intervention. In addition, family members were required to attend. The recidivism rate for the group of 55 adolescents who participated in the program was less than one-quarter that for the group of 177 control subjects who came before the court for their first offense prior to the program. The authors attributed the change to a shift in the practices, enthusiasm, and attitudes of those working with the youth, although these hypothesized factors were not specifically evaluated. Furthermore, the specific impact of this intervention on violent offenses was not evaluated, due, in part, to the small sample size.

Changing adolescent motivation. Several studies have suggested that programs designed to change the roles of at-risk youth in the community and increase their motivation toward prosocial behavior can be at least moderately effective in reducing serious antisocial behavior (Jones & Offord, 1989; Schinke, Orlandi, & Cole, 1992; Shorts, 1986). A critical aspect of the effectiveness of such interventions seems to be that they are provided as part of a larger-scale focus that promotes community development. An example is a program evaluated by Jones and Offord (1989) that provided social skill development for all of the children (ages 5 to 15) living in an urban public housing complex. In addition to direct skills training, the children were involved in organized competitive recreational activities that were designed to build on the skills training. The program

developers also worked with the community members to increase support for the program. The criminal activity of participants from the intervention complex was compared to that of residents in the same age-group from a matched control housing complex. Results indicated that program participants showed increased skills and involvement in recreational activities, increased self-esteem, and lowered crime and security violations. The rate of police charges against the participants in the complex receiving the program was one-fifth the rate of the comparison complex during the program and one-half its rate subsequent to the program. These findings were compromised by an initial rate difference that favored the intervention complex. In terms of financial benefits related to decreased criminal activity, cost-benefit analyses indicated a savings of about $60,000 for each year in which the program operated and $182,000 for the second year following the intervention.

Changing organizational structures. Perhaps the most common type of antiviolence programs are interventions that attempt to build community coalitions to increase awareness of violence, affirm antiviolence community norms, bring prosocial community forces to the fore, and provide prosocial alternative activities for adolescents (Cohen & Wilson-Brewer, 1991). Most programs using this approach rely on a broadly defined set of principles; the specific activities and organizational outcomes presumably vary over time as the needs of the participating community vary. Thus, evaluation is often limited to process description or dismissed as implausible due to the lack of control over actual program development and the difficulty of obtaining reliable evidence of direct effects on outcome (e.g., violence). For this reason, relatively little is known about the impact of such programs in actually reducing adolescent violence.

Some carefully conducted evaluation studies can, however, be found in the literature, although the results are not encouraging with regard to the usefulness of the programs for preventing serious antisocial and violent behavior. For example, over 30 years ago, Miller (1962) reported on an intervention called “total community.” This program involved developing and strengthening local citizens’ groups and attempting to secure cooperation between professional agencies. Families within the community who had histories of multiple contacts with legal and welfare agencies received intensive casework. Street-corner outreach workers met with local gangs to model prosocial behavior, organized and redirected the gang members’ interest, and provided positive role models. Although a decrease in “undesirable behaviors and statements” by participants was found, the decrease was attributed to greater school involvement rather than to the community program. Police and court records showed no decrease in offenses, and there was actually some increase in major offenses by participants.

A more recent evaluation suggests that community organization, if combined with a well-developed, structured program for at-risk youth, can be effective for reducing delinquency overall but still may not affect serious antisocial behavior. The evaluation reported on the Breakthrough Foundation’s community-based Youth at Risk program (Delinquency Research Group, 1986). This intensive, 18-month, multi-phase program included a 10-day, 120-hour residential intervention followed by community follow-up. During the residential intervention, lectures and discussions, small-group demonstrations, and modeling were used to help the youth develop skills to manage conflict and

antisocial behavior. All of these activities were meant to build self-esteem and increase self-efficacy and sense of control.

Before the residential program was provided to at-risk youth, it was introduced to the community, volunteers were recruited and trained to facilitate the program, and the first participants were contacted. After the intensive program, participants worked over the next 12 months on personal and community projects. Monthly meetings, counseling, tutoring, social events, and vocational training were all provided. Intervention participants reported significantly fewer arrests than did controls at the 2-year follow-up. However, arrest rates for serious crimes were not significantly different.

Residential Programs

A number of intervention efficacy studies have been conducted in both psychiatric and correctional residential facilities. Although the majority of these programs have actually been individual change programs offered within institutions (programs that we reviewed in the discussion of individual-level interventions), some programs have also focused on changing some aspect of the institution as a setting of development. Although we looked for examples of the three approaches discussed under school and community setting interventions, we found no programs related to changing worker practices and only one program that emphasized changing adolescent motivation. All other evaluated programs focused on changing organizational climate and operational structures. Overall, although various methods appear to be effective in reducing antisocial behavior within the institutional setting, there is little evidence, to date, that institutional programs can affect adolescent antisocial or violent behavior after release. Documented effects seem to be temporary and limited to those exhibiting less serious behaviors. In fact, several recent meta-analyses suggest that institutional programs fare no better and sometimes fare worse than community-based programs in terms of their impact on subsequent antisocial behavior (Andrews et al., 1990; Gottschalk, Davidson, Gensheimer, & Mayer, 1987; Lipsey, Cordray, & Berger, 1981).

Among the programs we reviewed, the only program that specifically targeted violence was an inpatient treatment program described by Agee (1979) that focused on increasing adolescent motivation. This program was designed to treat underlying psychological problems thought to lead to violence and to provide an explicit reward system for the self-control of acting out behaviors. Participants were adolescents with previous court commitments and a history of assaultive behavior. Over an average of 14 months, they were provided individual, group, and family therapy and adjunctive programming, and they participated in a structured set of activities and a reinforcement program. Compared to matched controls (youth who met criteria but were sent to other institutions), the participants showed increases in self-esteem and educational achievement at release. At an average follow-up of 7 months, the program participants had a lower recidivism rate. However, the evaluation did not indicate whether they also had a lower level of violent behavior, which is somewhat puzzling given the explicit programmatic focus on violence prevention.

Two approaches have dominated the evaluations of attempts to change the organizational structures

of residential programs: milieu treatment and behavioral token programs. The milieu treatment approach is marked by resident involvement in decisionmaking and the use of day-to-day interaction for psychotherapeutic discussion. Some evaluation studies have found lower postrelease recidivism rates when residential units are organized to promote individual responsibility and self-governance (Craft, Stephenson, & Granger, 1964). However, other studies have not found significant differences in recidivism rates between youth living on units emphasizing compliance with predetermined rules and youth living on units emphasizing shared decisionmaking and self-governance (Clarke & Cornish, 1978).

The most studied approach to changing residential programs has been to institute behavioral reinforcement programs. In such programs, participants are rewarded for conforming to rules, exhibiting prosocial behavior, achieving planned goals, and not evidencing antisocial and violent behavior (Rutherford, 1975). As with the individual behavior modification programs reviewed earlier, the intention is to change the adolescent's behavior habits by increasing the use of the positive behavior patterns established through reinforcement. However, with these programs, there is an additional focus on shifting worker practices and institutional organizational structures (Davidson & Seidman, 1974). For example, Cohen and Filipczak (1971) reported on a token economy intended to improve the academic and social performance of institutionalized delinquents and reduce recidivism by shifting student and worker behavior as well as the basic decision-making processes. The participants showed lower recidivism rates than controls from a school without this program at 1- and 2-year follow-ups, but by the third year the differences had disappeared.

The most carefully evaluated and fully implemented example of the behavioral modification approach in a residential setting is the Achievement Place program. Studies of this program have shown that minor delinquent behavior can be reduced and desirable institutional behavior increased through the use of tokens, time out, and point systems (Phillips, Phillips, Fixsen, & Wolf, 1971). However, the program's impact on subsequent delinquency is equivocal (Kirgin, Wolf, Braukmann, Fixsen, & Philips, 1979). Effects have been found on delinquency while participants were in treatment, but the effects were not maintained after treatment, which is consistent with most studies of behavioral methods. However, further evaluation has suggested that the effects were dependent on the extent of program implementation. When comparisons were made using only programs that were carefully and fully implemented, reinstitutionalization rates were found to be half those of traditional residential programs (Kirgin et al., 1979). This positive outcome must be tempered, however, by recognizing that Achievement Place excludes more serious and violent offenders.

Utility of Proximal Social Contexts Interventions

Although a number of social setting interventions have been implemented, their effects on violence prevention are uncertain. School change programs seem to be most effective for younger adolescents, and when parental involvement and cooperative learning are increased. Neighborhood programs, although increasingly popular, have rarely been evaluated for their impact on violent behavior. Although institutional programs often measure serious antisocial and violent behavior following

release, studies have shown that any behavioral changes evidenced during residential placement generally are not maintained after release.

Societal Macrosystems

Although the data suggest that violence is more prevalent in our society than in many others (National Research Council, 1993) and that its high rate is related to values and policies that support some types of violence (Baron, Strauss, & Jaffee, 1990), there have been few attempts to evaluate modifications of societal level influences. Such efforts typically involve social policy, legal, or social value changes that are difficult to evaluate in a manner that satisfies basic empirical requirements. Furthermore, adequate evaluation requires policy analysis, sophisticated archival comparisons, and the coordination of large data sets to observe any correlation between changes in violence and the onset of policy or other changes. Evaluators typically do not possess the skills and knowledge needed to access and adequately manage such data. Also, it is hard to obtain the financial support required to carry out such evaluations. These factors make the evaluation of societal-level interventions difficult to carry out in a manner that produces results that are interpretable in regard to the present focus. Unfortunately, we could not locate an evaluation of a societal-influence-level intervention that specifically targeted or even measured effects on adolescents. However, two types of societal macrosystem level interventions have been subjected to some empirical evaluation and are directly relevant to adolescent violence: changes in exposure to television violence, and changes in access to handguns and firearms.

Studies of media violence have shown repeatedly that children imitate violence seen on television, that television violence relates to children's unrealistic beliefs about violence, that more aggressive children watch more violent shows, and that watching violent shows predicts childhood violence and later crime even if childhood aggression effects are statistically partialed out (Eron, 1986). For example, two studies have reported the results of "natural" experiments that demonstrate the violence-increasing effect of current television fare. In one study, a remote town in Canada was unable to receive television for several years due to its location in a valley that precluded reception. However, with technical advances, television was introduced to the community. Evaluation of aggressive behavior among children showed a sharp increase following its introduction. Similarly, the political blocking of television reception to many communities in South Africa provided a similar natural test of media effects on violence. Following political reforms and the introduction of British and other television, the murder rate increased greatly (Centerwall, 1992).

Such natural experiments cannot be free of potential confounds. However, they suggest there is some clear link between what is shown on television and the violence rates. Several types of interventions could be studied that are likely to be effective in reducing adolescent violence (Eron, 1986). The short-term effectiveness of such interventions has been demonstrated by encouraging children to watch programs with nonviolent characters and to take part in discussions of the unreal nature of

television violence (Eron, 1986). However, none of the interventions have targeted adolescents, been tested outside the laboratory, or shown lasting effects. Alternative strategies such as warnings, education of children about media violence, lock-out switches on televisions, and encouragement of antiviolence themes in programming seem also to merit consideration. Some policy analysts have suggested that the broadening of choice that is coming with satellite transmission and cable television will permit parents and others to exert the necessary control to limit their children's and adolescent's exposure. At the least, what the studies that have been conducted suggest is that any significant effect on adolescent violence is likely to require decreasing media violence content and the exposure of children and adolescents to such violence as well as encouraging parents to monitor and critically discuss with children and adolescents the violence seen on television and through other media.

The second type of societal macrosystem-level intervention that has had some empirical base and merits careful consideration concerns access to and the lethality of guns in U.S. society. In addition to the apparent increase in firearm deaths as the availability of guns has increased, a review of effects of legal and policy changes that have decreased the availability of guns has shown a subsequent decrease in violence and deaths (Cook, 1991). In one study, a comparison was made between violence rates, particularly deaths attributable to firearms, in Seattle and Vancouver. These two cities are geographically proximal and similar in size, makeup, industry, and other major characteristics. However, Seattle did not have a handgun ban at the time of the evaluation and Vancouver did. The comparison revealed a large difference in violence rates and deaths attributable to access to handguns (Sloan, Rivara, Reay, Ferris, Path, & Kellerman, 1991). Thus, bans of handguns and assault weapons, national registration of ownership, public education about storage, design changes to improve safety and decrease lethality, and other efforts seem likely to be valuable societal-level interventions to reduce adolescent violence.

Thus, although social macrosystem effects have not been tested in regard to adolescent violence per se or in controlled experimental or quasi-experimental trials, the available evidence is remarkably consistent in suggesting that affecting the level of media violence to which children are exposed and decreasing their access to and the lethality of firearms are important components in reducing adolescent violence. It remains to be seen whether other societal macrosystem factors such as inequities in access to social and economic resources, inequities in the adequacy of medical and educational services, and persistent racism and other forms of social oppression also show such effects. It seems that the careful evaluation of such effects is merited.

Summary of Intervention Effects

As we have discussed in this review, there has been relatively limited sound empirical program evaluation that permits judgment of effects. There is also a considerable gap between the most commonly used programs and the most frequently evaluated ones. Thus, the value of the present review is limited because it indicates that most approaches have not been well evaluated and that effects shown must be qualified and enthusiasm for given approaches tempered. A major reason for

this state of affairs is that even the most basic knowledge about what is effective and what is not, let alone knowledge about what works with which populations and for what type of violence, is lacking. There is, therefore, a dramatic need for outcome evaluation of antiviolence interventions. Although the quality and specificity of knowledge gained is dependent on the quality of the design and the specificity of the evaluation methods, even basic group comparisons that demonstrate some efficacy for advocated programs would provide great advances in knowledge. Such evaluations could provide broad outlines of what approaches are not obviously harmful or ineffective and which merit further use, development, and evaluation. Otherwise, we risk being not only inefficient in our efforts, but probably ineffective in many of our efforts and perhaps even harmful. ***The potential costs are too great not to make basic evaluation a requisite characteristic of all program efforts***.

Until the database on adolescent violence is built, the larger field of programs designed to reduce serious antisocial behavior and aggression can provide some basic direction. Table 1 summarizes the state of the fields of adolescent violence and antisocial behavior and indicates which approaches have demonstrated a consistent effect (positive, negative, or no net effect), which have shown mixed results, and which have not been sufficiently evaluated to determine effectiveness. It may be that the most effective programs have not been evaluated yet or that those programs demonstrating effectiveness are simply better than nothing and would not fare well in direct comparison to competing approaches. Certainly, it is still unclear what programs work for what types of violence and for which adolescents. (See Table 1).

From Table 1, one can see that there are effective programs that focus on each level of intervention, although the majority of evaluated programs target individual-level influences. At the individual level, there is support for use of cognitive-behavioral multidimensional programs, particularly those that combine generic problem-solving skills (a structured method for solving interpersonal conflicts) with other cognitive skills (e.g., perspective taking and moral reasoning). Furthermore, programs that provide for extensions into real-life skills and situations appear to be more effective than others, and behavior modification in real-life settings has shown promise. There is some evidence that individual analytic and supportive psychotherapy can work if it is part of a larger structured program. However, the overall evidence argues against its use. It is less effective than other approaches (Kazdin et al., 1992) and may have harmful effects (Guttman, 1976). Similarly, intensive casework has been evaluated numerous times and has failed to show a positive effect; at times, negative effects have been shown. Biomedical approaches have produced equivocal results and appear to be indicated only for extremely violent youth.

A neglected area in regard to evaluation is the identity development program. An increasingly popular version of this approach is the manhood development program, which attempts to counter violence prevalence, particularly among African American men, by providing Afro-centric moral education and fellowship to establish an antiviolence- and self-esteem-based guide to behavior. These activities attempt to build esteem, improve moral reasoning, and inculcate participants in a moral code. Often, such individually focused strategies are combined with increasing practical opportunities for education and employment. Thus, they are based on some approaches that have

shown promise, yet they have a different philosophical base and set of procedures. Because they are being instituted broadly, they are among the increasingly popular programs that urgently need evaluation.

Another approach that shares some philosophical roots with the manhood development programs is mentoring. However, mentoring programs have not been empirically evaluated as antiviolence strategies. Similar programs aimed at increasing educational achievement and reducing teenage pregnancy have had poor results (Davis & Tolan, 1993). In part, their lack of success may be due to the common problems of limited staff training and program structure and volunteer mentors quitting because of frustration.

At the level of proximal interpersonal systems, there is clear evidence that family-targeted interventions that focus on improving parent behavior management skills, promoting emotional cohesion within the family, and aiding family problem solving are effective. This focus also has the most evidence for effectiveness in comparison to any of the others. The major remaining questions concern its effectiveness for violence in its various forms and the ways in which services can be delivered to families in need of intervention.

The results of peer relation intervention studies are less promising. Guided group interaction with at-risk or antisocial youth only seems to have a negative effect and should not be used. Other attempts to promote positive peer culture among antisocial youth seem ineffective. However, there is some evidence that if prosocial youth are included in the peer values intervention, and the interactions are structured and sustained, there can be a subsequent reduction in the criminal behavior of at-risk youth. The other approaches to peer influences have not been investigated adequately enough for conclusions to be drawn. Recruiting youth out of gangs or preventing their gang recruitment, when evaluated, has not produced impressive results. This type of intervention is particularly difficult to document, given the impediments to measuring gang involvement accurately (Klein, 1971). However, given the finding that serious antisocial behavior increases when adolescents join gangs but drops if they decrease involvement or quit, this intervention needs more consideration and careful evaluation (Thornberry, Krohn, Lizote, & Chard-Wierschem, 1993). Peer mediation, although a quite lauded and frequently used intervention, has had minimal evaluation, and the evaluations that have been done have produced mixed results. Its popularity, its potential value as a primary prevention method, and the fact that it may be particularly apt for situational and interpersonal violence all suggest it should be a priority focus for evaluation.

Interventions to affect the proximal social settings that are the contexts for adolescent development show some promise, but they have been primarily characterized by inadequate evaluation. The two settings that affect all children, schools and neighborhood communities, seem to be used primarily as sites for the delivery of individually oriented services rather than targeted as influences on adolescent violence. Three types of interventions show promise for impacting these social settings. The first approach is to increase parental involvement in schools. In particular, parental access to teachers, parental support for school efforts, and increased opportunities for parents to have valued

roles in schools seem beneficial. These involvements do not necessarily require parental control of school operations (Anson et al., 1991). The second type of valuable intervention at this level includes programs that can increase the motivation of high-risk youth to attend and perform in school and engage in prosocial community activities. The third apparently effective strategy, often combined with the second, is to provide opportunities for youth in general to have more prosocial roles in schools and communities (Davis & Tolan, 1993).

Several approaches that are currently advocated have been minimally evaluated to date, the most common being community organization programs. These programs attempt to increase the involvement of community members in policing the community or in promoting antiviolence norms and often attempt to coordinate agencies to increase services to the community. Although their study was juvenile court centered, Tolan et al. (1987) found that coordination of agencies could decrease the return of first offenders. However, a more comprehensive community-based effort with a more extensive evaluation did not find much effect (Miller, 1962). Given the length of time since the Miller program was carried out, its authority for current efforts may be limited. Nonetheless, the results of the studies that have been conducted suggest that these politically popular interventions need careful evaluation and cautious application.

Residential institutions are the proximal social context for development for some violent youth, particularly those showing more serious violent behavior. Evidence indicates that milieu programs that increase the predictability of expectations via behavioral points or token programs and increase responsibility through group discussions seem to aid behavior while the youths are at the institution. However, the long-term results are scant and are not promising. It may be that the techniques are helpful but that implementation and follow-up are compromised for economic and practical reasons. It seems that simply moving these programs to a community setting would not increase their effectiveness, although the change would decrease costs. Community-based programs have shown promise, particularly when they are structured and include family and cognitive behavioral intervention components and when they are aimed at younger adolescents (Gottschalk et al., 1987; Lipsey et al., 1981). Thus, the efficacy of the services provided seems to determine their impact, rather than a community setting per se or the effect of diverting youth from official judicial processing. Generally, the latter approaches are preferable to institutionalization because they are less expensive, not because they are necessarily more effective.

There have not been specific tests of interventions that affect societal-level influences on adolescent antisocial behavior and violence. We do not know that decreasing access to guns has decreased the rate of gun-related homicides and presumably would decrease the lethality of adolescent violence as well. It is unclear if the overall violence rate remains stable but the violence is simply less lethal. Such an impact would not negate the value of gun-control efforts, but it does affect how sufficient an effort it is. The potential power of societal-level interventions, both in number of people reached and in the likely persistence of efforts, suggests a need to conduct policy analyses and other quasi-experimental evaluations in order to determine which policies decrease violence and which have no effect or are harmful.

Two major qualifications must be made to the conclusions of this review about the most promising approaches. First, design, implementation, and other practical concerns influence how difficult it is to carry out a program to reduce violence and to evaluate its effects. These influences confound evaluation of program effectiveness and judgment about the relative value of approaches at different levels. Because individual-level programs are easier to implement and to evaluate than other types of programs, they are the most commonly designed and the most readily evaluated. Their effects on mediating violence can be documented by measuring individual change only. With individual-level approaches, comparison groups are easier to construct, random assignment is easier to impose, and follow-up is less complicated. Often interventions at this level can be implemented without the need to obtain community or parental support, and they generally require minimal family, school, or neighborhood commitment (Davis & Tolan, 1993; Price & Lorion, 1989).

For programs targeted at the other levels, changes in groups of individuals, relationships, social structures, or social norms must be demonstrated and then tied to shifts in population rates of violence (Shinn, 1990). Acceptance and support of the program and commitment to it by the community are often necessary if it is to have an impact, but the work required to obtain these can impede attempts to undertake this level of intervention. Further, adequate comparison is hindered by the difficulty in identifying and matching controls and adequately controlling competing and confounding influences (Tolan, Keys, Chertok, & Jason, 1990). Even when such methodological control can be attained, it is difficult to maintain adequate control over the duration of the intervention and the necessary follow-up time to determine lasting effects. Thus, because it is easier to study and intervene with individuals, such efforts get an inordinate amount of attention and their overall value may be inflated. However, simply demonstrating differences in groups' means may not indicate the importance of the focus, the relative costs of such an approach, how lasting the impact is, how many persons are affected by a given intervention, and the acceptance and stability of a program within a community.

The second major qualification is that the impact demonstrated by programs on serious antisocial behavior may not transfer to violence. In addition to the need to recognize that there are multiple types of violence that may be differentially affected by a given program, one must recognize that programs that reduce general antisocial behavior may not affect violence or may even increase it. It could be that those who exhibit predatory violence are among the most persistently involved in violence and the least responsive to most interventions (Moffitt, 1993; Tolan & Loeber, 1993). Thus, the group from whom most of the available data has been derived may be quite different from those who commit other types of violence. It is important that program reports attempt to distinguish the impact of the intervention on less serious behavior and less involved youth from the impact on more serious behavior and more involved persons. In addition, the specific impact on violent behavior needs to be evaluated. Another necessary step is to develop programs that lessen situational and relationship as well as predatory and psychopathological violence. The former types of violence represent a large portion of adolescent violence and may represent the most preventable types of violence.

Even with these qualifications, the current review does identify approaches that should be avoided, approaches that merit cautious implementation without more evaluation, and approaches that can be characterized as “best bets.” In addition, this review also highlights research and policy directions that are integral to further progress.

Conclusions and Recommendations

Consistent with previous reviews and commission recommendations, we believe the key to real progress in adolescent violence is to obtain a solid empirical base (American Psychological Association, 1993; Centers for Disease Control, 1993; National Research Council, 1993). Such a base depends on policy and funding to support evaluation, but it also relies on a recognition of the importance of evaluation by those developing and implementing programs. However, this need for an empirical base does not imply that action should wait. The need for research is so urgent because there currently are so many programs affecting so many adolescents, families, schools, and communities at such large cost and operating under the aura of so much promise. Well-intentioned efforts are being applied to many children and adolescents without any indication of their effects. It usually is hard to imagine that a good idea put into action by well meaning and enlightened people cannot help. Also, given that adolescent violence is such an injurious social problem, it may seem that any effort is better than nothing. Yet our review and several of the more long-term and sophisticated analyses suggest that both of these assumptions can be dangerously wrong. Not only have programs that have been earnestly launched been ineffective, but some of our seemingly best ideas have led to worsening the behavior of those subjected to the intervention (Lorion et al., 1987; McCord, 1978; Miller, 1962). Even when our hearts are most impassioned and our minds most sharply focused, we can still be seriously wrong. Thus, evaluation is urgently needed to help us sort out what is helpful, what is harmless but ineffective, and what will actually make the problem worse.

Further, continued activity without documented effect can have political costs if subjective contentions are permitted to become the exclusive currency of evaluation and policy formulation. Allegations of large expenditures without documented effect can be used as evidence of ineffectiveness. In contrast, although not likely to sway policy debates wholly, effectiveness evidence can take policy discussions beyond mere partisan squabbling. For these reasons, too, it is imperative that basic evaluation of effects be a required component of intervention efforts (Cohler & Tolan, 1993).

In turn, it seems incumbent on those agencies funding programs to focus on the testing of very popular as well as apparently promising approaches. This may mean directing resources to programs that may not be the personal interests of current evaluation researchers. It also may mean working to coordinate researchers and community program developers to provide an exchange so that evaluations meaningfully capture program realities but also so that standardization of program designs and evaluations are increased. One specific aspect of this approach is to include funding for program and measurement development and adequate support to permit time for community relationship development. Such “preliminary” work in the eyes of many funding agencies is, in fact, fundamental to evaluating actual programs and necessary if transferability is to be determined. Another helpful policy would be for agencies funding action programs to include consultation and technical assistance by research methodologists and program evaluators as part of their funding. Specifically, agencies should require set-aside funds in budget applications and evidence of substantive program evaluation for funding beyond an initial period.

Current practices separate research from program funding and minimize the extent to which research funders can direct and coordinate the investigatory interests of scientists. These two fundamental shifts are needed if we hope to accumulate a usable knowledge base for the field (Garbarino, 1993). Such a knowledge base is fundamental if there is to be any significant impact on adolescent violence (Cohler & Tolan, 1993). ***Short of such action, it is likely that reviews in 10 or 20 years will have to draw the same tentative conclusions we have made***.

Beyond these rhetorical calls, we believe that several policy, general funding, and research agenda shifts are needed (Garbarino, 1993). However, because these have been well articulated in the general recommendations of the National Research Council and the APA Commission on Youth, we will not repeat them here. We will suggest here several additional specific steps that can be taken to further our knowledge and aid us in helping adolescents in regard to violence.

MAKE EVALUATION OF OUTCOME A FUNDAMENTAL REQUIREMENT OF PROGRAMS

Program funding agencies should make the evaluation of program effect on violence and related behavioral outcomes a requirement for support. Requiring set-aside funds and interim reports that indicate that substantial effort has been made to include adequate evaluation of outcome is an important mechanism to increase such evaluation. Tying further funding to demonstrated effectiveness is also helpful. Several recent practical guides have been published that indicate how such evaluation can be implemented. In particular, The Centers for Disease Control report (1993), ***Communities that Care*** (Hawkins & Catalano, 1992), and recent monographs by the Office of Substance Abuse Prevention (now the Center for Substance Abuse Prevention within the National Institute of Mental Health [NIMH]) provide guidelines on how to develop a program that is specific to the needs of the community and reflects the views of the staff but permits fundamental evaluation of effects of programs. A recent volume on conducting research that is sensitive to community concerns is also available to provide some guidance on how to reconcile scientific (evaluation) concerns and community values (Tolan et al., 1990).

At a minimum, evaluations of all programs should include the following five basic design characteristics:

1. A description of the sample's demographic characteristics (age, gender, ethnicity, socioeconomic status, residence location) and risk or involvement level in regard to violence prior to the intervention outset.

2. A comparison group that is the same as the treated group(s) on basic demographic characteristics and risk or involvement prior to intervention. The comparison group can be a no-treatment control, a prior cohort in a multiple baseline design, or preferably a group receiving a competing intervention. Although matching of treatment and controls is acceptable, random assignment is preferable. Contrary to what is often assumed, random assignment can be the most ethical method of testing

intervention effects. The co-occurring dilemmas of withholding a potentially valuable intervention while also subjecting those involved to an unproven intervention make this method the best compromise. An even more satisfying solution is to randomly assign participants to two or more competing interventions (see section on preferred designs).

3. A description of the intervention methods applied, including a statement of the goals of the intervention (what will change) and how they should mediate (lessen) violence, the activities and method of delivery of the intervention, and the dosage (how much exposure over what period of time). Such a description should provide a measure of integrity. It should show that what was supposed to be delivered was actually provided and should indicate provider characteristics that might mediate delivery or impact.

4. Measurement of violent and related behavior prior to and after the intervention. Measurement of the mediating variables that are the direct target of the intervention should, if plausible, be assessed before and after intervention. Another highly desirable characteristic is to measure outcomes at some period of time after intervention (e.g., at least 6 months later) to determine if any noted changes persist or because behavioral change may not be evident immediately at post-intervention or may not be relevant until after intervention is over. Similarly, pretests at two points prior to intervention can disaggregate attention and other pretest confounds in pre-post comparisons.

5. A quantitative measure of effects (even if categorical). The specific type of report will depend on the size of the study and the type of measures used. Although qualitative analyses can be very useful for tapping perceptions of those involved and indicating aspects of impact beyond effectiveness, they are not as useful as qualitative methods to measure basic group effects for behavior.

This set of parameters permits a basic evaluation of whom the program can help, whether it has some documentable effect, whether it is or is not harmful, and by what method violence is affected by the program. Without these basic design characteristics, the program's impact is a matter of speculation and conjecture. If follow-up measurement, measures of mediating intervention variables, or other desirable basic design features are included, then the meaning of results can be more certainly judged. Also, the evaluation of the effectiveness of a study can be enhanced if cost effectiveness and improvements in related problems (e.g., drug use, quality of community life), which attest to the value of a program, can be estimated (often from archival data). Another desirable characteristic is that changes in scores on measures be explained beyond their statistical significance to translate such difference into "clinical significance." An intervention may decrease rates of arrest for violence, but the rates may still be so high that its utility is questionable. In most cases clinical significance is expressed as percent of subjects who are within a normal range or category on an outcome variable (Kazdin, 1991).

Inclusion of these characteristics can be promoted by funding initiatives that include consultation by program evaluators and methodologists (Lorion & Ross, 1992). Another method would be to support a year of development in a multi-year funding so that community support could be fostered

and the program's integrity established prior to attempts to intervene. Such action should lessen conflict between program prescriptiveness and community fit and consistency and control needed-for evaluation (Tolan et al., 1990).

PROMOTE YOKED AND STEP DESIGNS FOR VIOLENCE RESEARCH

If the field is to progress expeditiously, a coordinated comparison of competing approaches is needed. There are two basic designs that can be applied that permit relatively efficient evaluation of methods. The first yokes two or more approaches in an intervention trial with random assignment of participants to approach. This design not only permits testing of whether either intervention is effective, but it also indicates the relative effectiveness of each. It can serve to refine theory or indicate which of competing explanations is more useful. Yoking can be between specific methods within an approach (e.g., anger control versus moral reasoning), between approaches targeting a specific factor or set of factors (e.g., behavioral parent training versus communication training to reduce family discipline problems), or between factors within a level (e.g., family versus peer influences) or across levels (e.g., intervention at the close interpersonal relationship level versus the level of proximal social contexts). Beyond being used to investigate basic effects, yoked comparisons could be used to investigate service delivery, implementation, and variation in effects by population.

A second approach uses a step design, which permits comparison of methods, approaches, factors, and levels by comparing interventions with fewer components with those having more. Each "step" adds an additional intervention component. What is added depends on the research question. For example, in our ongoing Metropolitan Area Child Study (Guerra et al., 1990), we have been interested in the development of cost-effective interventions to prevent serious antisocial behavior, including violence, among inner-city children and adolescents. Therefore, we have compared preventive interventions that add components that are increasingly costly, difficult to mount, and intrusive and that require more intensive administration. As can be seen in Figure 3, we compared a no-treatment control group with the first step, which is a general intervention provided to all children and teachers to affect children's problem solving and school norms about aggression and to improve teachers' behavior management. This "step" was then compared to the next step, which added a component of providing a group intervention to high-risk children. The intervention involved a more intensive exposure to social problem-solving training and also addressed issues of peer relations. This step was then compared to the third step, which added a family intervention for high-risk children to all of these components. Thus, the groups differ as to how much intervention and what types of intervention they receive. This method permits us to determine the increase in effect gained by the addition of each component (See Figure 3).

Although these designs have their limitations, they provide more efficient building of the needed knowledge base than the more common demonstration effects (Kazdin, 1991). These designs require a concentration of funds and often necessitate the collaboration of researchers with interest in competing interventions. However, the final expenditure for the amount of knowledge gained and for the aid provided to adolescents is probably less than that for the continuous funding of research

and action programs aimed at demonstrating the efficacy of one approach and is certainly money better spent than that allocated to programs that fail to even evaluate effects. Thus, for these design advances to be used, it is likely that funding initiatives will be needed to coordinate the cooperation of investigators.

FUNDING AND INTERVENTIONS SHOULD BE EPIDEMIOLOGICALLY INFORMED

Most of the interventions launched either are based in some political or philosophical perspective of a community agency or are meant to demonstrate a theory of the researcher. As a result, the designs of neither type of study are well grounded by consideration of the population characteristics and risk factors, which determine the likelihood of effectiveness (Garbarino, 1993). Most oversimplify the complexities of how, by whom, and to whom adolescent violence occurs. In addition, given that almost all interventions target only a small proportion of the types of violence, much of the problem of adolescent violence is left unaddressed. There remains an urgent need to gather more specific and extensive data on adolescent violence to direct interventions. However, the broad outlines are already available. Thus, there is a need to design interventions that are mindful of the full range of adolescent violence, that consider that the elevated rate of violence among adolescents exists within a societal elevation, and that note the differences in risk among groups of adolescents. Similarly, funding should be allocated to support attention to all of the patterns found among our youth.

INITIATIVES SHOULD BRING COMMUNITY PROGRAMS AND UNIVERSITY RESEARCH PROGRAMS TOGETHER AND LINK MULTIDISCIPLINARY RESEARCHERS

The complexity of the problem of adolescent violence and the urgency of finding effective responses to it suggest the need to link community agencies and programmers, who have intimate knowledge of the setting characteristics and accumulated operational knowledge, with university researchers, who have a command of the accumulated research on intervention techniques, implementation concerns, and evaluation methods. This coupling can aid in the development of fair (objective and appropriate) assessments of intervention effects and also would probably improve the quality of the interventions developed (Tolan et al., 1990). In addition, violence is a problem that involves topics of concern to many scholarly disciplines and policies that affect most areas of social life. Thus, it seems that this problem is too complex to be relegated to the concern of a few disciplines. It is unlikely that adequate explanations of its cause or needed interventions will come from a narrow perspective or that one basic approach will shift prevalence rates. Multiple perspectives should be represented in evaluations, and methods and ideas from multiple disciplines should be employed. An obvious example is the use of economic analyses to consider cost-effectiveness. Such a broad, multiconstituent knowledge base is also probably necessary for the implementation of any major policy shifts.

FUNDING LEVELS THAT CORRESPOND TO THE THREAT ARE NEEDED

As noted by the National Research Council, the funding support for violence research is seriously less than that for other public health problems. The National Research Council calculated that current federal funding for violence research totals about $20 million but noted that the costs imposed by violence justify a level far exceeding that amount. For example, in a comparison of research expenditure based on years of life lost due to different problems, violence research was shown to receive $31 compared to $794 for cancer, $441 for cardiovascular problems, and $697 for acquired immunodeficiency syndrome (AIDS). The National Research Council panel suggested that funding at $10 billion per year was warranted. This level is comparable to the amount spent on space research and on building new prisons. However, the panel noted that funding at a level even on a par with cancer and the other diseases mentioned would be adequate to answer most of the research and policy questions that are stymieing our effectiveness. These recommendations represent sorely needed reasonable steps to be taken if we are to consider affecting youth violence a national priority (Garbarino, 1993; Cohler & Tolan, 1993). The costs involved, the shifts in practices required, and the complexities imposed in conducting empirical tests of effectiveness are small compared to the current expenditures and other costs of youth violence.

NOTES

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2. With the current distinction of naturalistic effectiveness and efficacy demonstration in intervention research, we note that our current evaluation focuses on efficacy in judging approaches but considers effectiveness in drawing conclusions.

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Figure 1. Four Types of Youth Violence

Violence Type			
Situational	Relationship	Predatory	Psychopathological
Percent of Population			
More than 25%	About 25%	5-8%	<1%

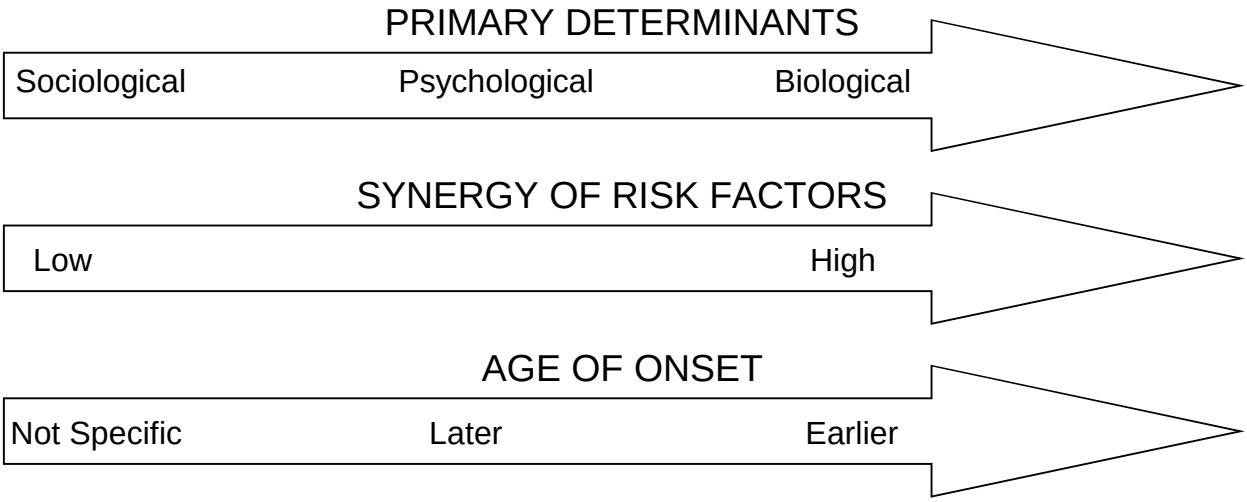

Figure 2. Biopsychological Systems Influencing Youth Violence

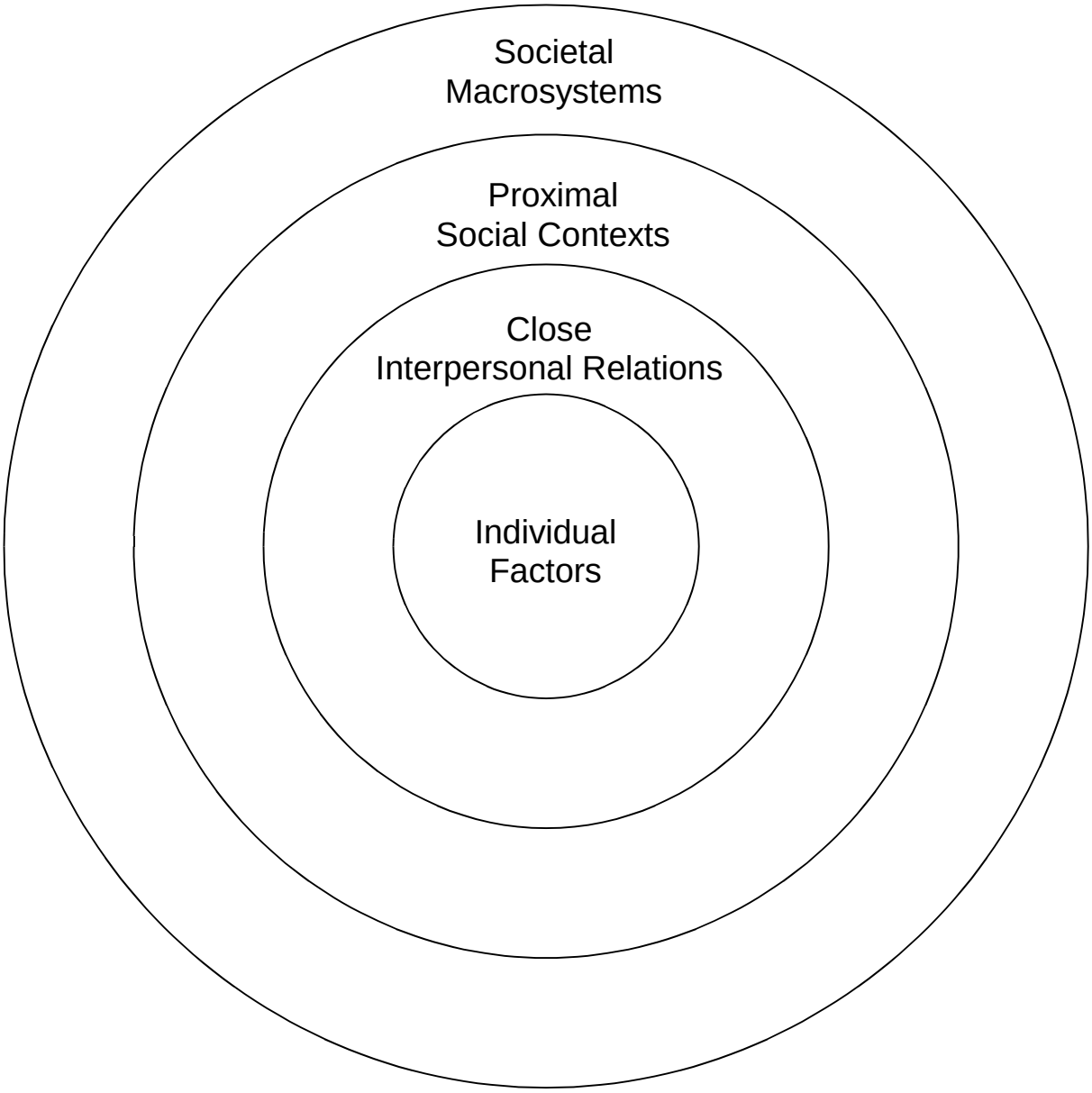

Figure 3. Design of the Metropolitan Area Child Study

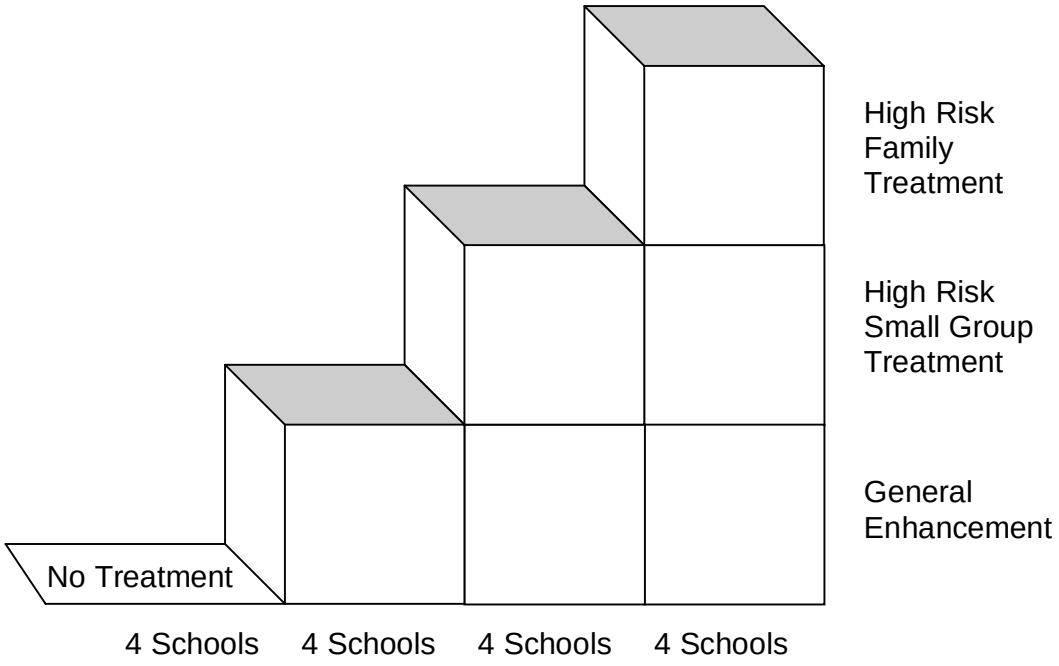

Table 1
Comparative Value of Approaches to Adolescent Violence and Antisocial Behavior

	Works[a]	Doesn't Work	Unclear	Untested
INDIVIDUAL INTERVENTION				
Psychotherapy				
Analytic		X/-		
Supportive		X/-		
Behavior Modification	X[b]			
Cognitive Behavioral				
Anger Control		X		
Perspective Taking	XX			
Problem Solving	XXX			
Social Skills Training			X	
Intensive Casework		XXX		
Pharmacotherapy			M	
Manhood Development				X
Mentoring				X
PROXIMAL INTERPERSONAL SYSTEM INTERVENTION				
Family				
Behavior Management	XXX			
Family Relations	XXX[c]			
Family Problem Solving	XXX			
Peers				
Guided Group Interaction		XXX		
Structured Interaction	XX			
Peer Mediation			NM	
Recruiting Out of Gangs			X	

Table 1 (continued)
Comparative Value of Approaches to Adolescent Violence and Antisocial Behavior

	Works[a]	Doesn't Work	Unclear	Untested
PROXIMAL SOCIAL SETTINGS INTERVENTION				
School				
Teacher Practices			NM	
Student Motivation	XXX			
School Organization	X[d]			
Environmental Security[e]				X
Neighborhood/Community				
Worker Practices				X
Youth Roles/Motivation	XX			
Community Organizations			M/NM	
Residential Institutions				
Worker Practices				X
Youth Roles/Motivation	XX			
Institutional Organizations			M/NM	
Diversion	XXX[f]		M	
SOCIETAL MACROSYSTEMS INTERVENTION				
Access to Guns	XX			NM[g]
Media Violence	XX			NM[g]
Educational Opportunity				X
Health/Welfare Needs				X
Economic Opportunity				X
Police Practices				X
Mores				X

Table 1 (continued) **Comparative Value of Approaches to Adolescent Violence and Antisocial Behavior**
[a]Effects are classified as **works** (X = some demonstrated effect, XX = multiple measures or studies showing effect, XXX = long term effects demonstrated); **doesn't work** (same codes as works column, with - = negative effect, X/- = one negative effects and more than one no effect study); **unclear** (M = mixed results, NM = needs more studies); and **untested** (X = no empirical evaluation, NM = needs more studies, M/NM = mixed results from a few studies, needs more studies).
[b]Effects are demonstrated when in community setting and generalization is included as part of training.
[c]Effective, but never tested as a solo method.
[d]If increases parental involvement
[e]Refers to attempts to make schools more secure (e.g., metal detectors)
[f]Although some lasting effects have been shown, the accumulated studies have not shown positive results consistently.
[g]Although there is evidence of a causal link to violence levels, the value of different interventions has not been adequately evaluated.