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# Prevention of Serious and Violent Juvenile Offending

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Serious and violent juvenile (SVJ) offenders, although few in number, are responsible for a disproportionate number of crimes. The Office of Juvenile Justice and Delinquency Prevention (OJJDP) has built a research base to increase understanding of this group of offenders among policymakers, youth service providers, and the public. OJJDP's Study Group on Serious and Violent Juvenile Offenders expanded on the *Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders* (Wilson and Howell, 1993). For 2 years, the Study Group of 22 researchers collaboratively analyzed current research on risk factors, protective factors, and the development of SVJ offenders. This Bulletin focuses on one aspect of this work—prevention.

The best predictor of antisocial adolescent behavior is early conduct problems. Most serious offenders have a history of childhood misbehavior, including antisocial behaviors such as physical aggression, conduct disorders, and disruptive, covert, oppositional, and defiant behaviors. Identifying the risk factors for these behaviors is important in developing strategies to prevent violent offending. Risk factors may include distal or community-level risk factors, such as poverty or access to guns or drugs, and proximal risk factors, such as parent management practices, deviant peer groups, or low intelligence. This Bulletin explores these proximal risk factors, reviews the early developmental precursors to violent offending, and summarizes approaches to prevention. It also discusses components of intervention programs; limitations of single-focus preventions; examples of well-designed, multisystemic intervention programs that target proximal risk factors; and limitations of prevention strategies.

## From the Administrator

While most youth who enter the juvenile justice system never return, a small number of serious, violent juvenile offenders reoffend repeatedly, accounting for a disproportionate amount of juvenile crime.

To enhance our understanding of these troubled and often dangerous youth, the Office of Juvenile Justice and Delinquency Prevention established its Study Group on Serious and Violent Juvenile Offenders. Expanding upon OJJDP's formative work on the Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders, the 22 juvenile justice experts who constituted the Study Group analyzed research on the development of serious and violent juvenile offending and effective interventions to prevent its recurrence.

This Bulletin describes some of the developmental precursors to such offending and offers effective approaches to its prevention that are family, parent, and child focused. Examples of well-designed intervention programs are also provided.

It is my hope that the information contained in this Bulletin will help communities better understand and address serious and violent juvenile offending.

John J. Wilson
Acting Administrator

## Early Developmental Precursors

Professionals who work with youth at risk for serious and violent offending come from a variety of disciplines, including juvenile justice, education, and mental health. Each discipline has different concerns, treatment approaches, and descriptive terms. In juvenile justice, for example, minors who have committed actions that courts have found to be illegal are described as juvenile delinquents. In contrast, educators and mental health practitioners refer to the same youth as antisocial, aggressive, disruptive, or, in more severe cases, conduct disordered.

Because of these different perspectives, treatments used by one discipline may not be known or used by another. This is particularly true of attention deficit hyperactivity disorder (ADHD), a risk factor for serious antisocial behavior. ADHD is one of a group of disorders, including conduct disorder and oppositional defiant disorder (ODD), that are collectively known as disruptive behavior disorders. Some of the symptoms of conduct disorder, such as theft, rape, and arson, are illegal activities but others, such as lying, are not illegal. Many of the symptoms involve physically aggressive or violent behavior. ADHD and/or ODD usually develop before conduct disorder does; it is therefore likely that some children with ADHD will develop conduct disorder and thus juvenile delinquency. From a multidisciplinary perspective, ADHD is often overlooked as a risk factor in programs that target the development of antisocial behavior. This Bulletin also examines interventions that target ADHD.

## Approaches to Prevention

Approaches to prevention may be universal, selected, or indicated. Universal programs address an entire population of children, such as those in classrooms, schools, or neighborhoods, and usually address a community-level risk factor such as neighborhood poverty rather than a delinquency outcome. Selected programs, on the other hand, target high-risk children who may have already shown some antisocial behavior. Indicated programs are for those children who have been identified as showing clear signs of delinquent or antisocial behavior.

A program can address a specific population at one of three levels of prevention. Primary prevention addresses the disease or disorder, such as antisocial behavior. One example of primary prevention would be to decrease low-weight births by eliminating maternal smoking. Secondary prevention detects early signs of a disorder, such as ADHD or academic underachievement, and curtails or cures the problem. Tertiary prevention addresses the disabilities or damages caused by a disorder, for example, treatment of academic difficulties resulting from chronic depression.

### Family- and Parent-Focused Components

Effective family- and parent-focused programs have used one of three strategies: parent management training, functional family therapy, or family preservation.[1]

**Parent management training.** This method attempts to influence child behavior by teaching parents better parenting strategies. Parents of children with behavioral problems tend to be inconsistent and punitive in establishing and enforcing rules, which often causes children to use aversive behavior such as whining to manipulate their environment.[2] Parent management training offers parents individual or group training at a school or clinic where they learn to:

- Communicate clear expectations about behavior to their children.
- Identify positive and negative behaviors.
- Recognize antecedents of problem behaviors.
- Provide positive consequences for positive behavior.
- Impose noncoercive negative consequences for inappropriate and noncompliant behavior.

Parents are given homework assignments to practice the skills they learn in class, and they receive feedback from the therapist. Parent management training programs also promote positive, shared family experiences by "prescribing" joint parent-child playtime or shared family recreational activities.[3]

Although evaluations of parent management training programs demonstrate substantial changes in parent and child behavior, followup studies show that 25–40 percent of children whose parents participated in these programs continue to have clinically significant behavior problems.[4] Families are less likely to benefit from these programs if the parents have limited economic and personal resources, psychiatric problems, little social support, or serious marital conflict.[5] Also, if the training focuses solely within the home, the lessons may not be generalized to other environments such as the school.

**Functional family therapy.** This approach[6] increases communication and mutual problem solving by specifying clear rules and consequences for breaking them; developing clear and contingent parent-child contracts that link good child behavior to specified rewards; using social reinforcement such as praise; instituting a token economy (the exchange of privileges for good behavior); and relying on cognitively based interventions. The functional family therapy approach has been found to improve family communication and lower recidivism of youth.[7]

**Family preservation.** This multisystemic crisis intervention is intended to prevent placement of a child outside the home as a result of abuse, neglect, or delinquency. Family preservation's intense, short-term services (10–20 hours per week for 4–6 weeks) entail a low caseload—caseworkers usually handle fewer than five families—and include parent management training, didactic training in life skills, home and budget management, assertiveness training, and coordination of community services.

Evaluations have shown that although they decrease the number of children placed outside the home, family preservation methods fail to improve the situation of the family (Feldman, 1991; Miller, 1995). The individualization of services is an advantage over "packaged" services, but the reliability of these programs is difficult to track (Miller, 1995). Also, given the

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[1] Bulletins in OJJDP's Family Strengthening Series discuss the effectiveness of family intervention programs and provide resources to families and communities. For more information about Bulletins in this series, contact the Juvenile Justice Clearinghouse at 800–638–8736, 301–519–5212 (fax), or asknjcrs@ncjrs.org (e–mail).

[2] Patterson, Reid, and Dishion, 1992; Wasserman et al., 1996.

[3] Barkley, 1987; Eyberg and Boggs, 1989; Forehand and McMahon, 1981; Hawkins et al., 1992; Webster-Stratton, 1984.

[4] Forehand, Furey, and McMahon, 1984; Webster-Stratton, 1991.

[5] Forehand, Furey, and McMahon, 1984; Strain, Young, and Horowitz, 1981; Wahler, 1980; Wahler and Dumas, 1984.

[6] Alexander et al., 1976; Alexander and Parsons, 1973; Barton et al., 1985; Klein, Alexander, and Parsons, 1977.

[7] Alexander et al., 1976; Alexander and Parsons, 1973; Klein, Alexander, and Parsons, 1977.

well-publicized instances of the failure of social services to prevent the abuse and death of children remaining in the home, this approach may not always be the most effective.

## Child-Focused Components

**Social competence training.** Children who lack social and cognitive skills tend to be aggressive (Huesmann et al., 1992). They fail to pay attention to social cues (Dodge, Bates, and Pettit, 1990), have poorer problem-solving abilities (Rubin and Krasnor, 1986), and exhibit less empathy than their peers. Social competence training helps youth learn positive social behaviors (e.g., conversational skills, academic achievement, and behavioral control strategies) and to improve social-cognitive processes (e.g., problem solving and self-control). These programs, often school-based, focus on the consequences of physical aggression or coercion and are neither used to treat serious conduct problems nor focused on covert antisocial behavior such as stealing or vandalism. Some examples of social competence training programs follow:

- The Interpersonal Cognitive Problem-Solving curriculum uses games ranging from simple word concepts to strategies for finding solutions to interpersonal problems, and for thinking consequentially and learning to empathize. Children in this program become less aggressive, more socially appropriate, and better able to solve problems.[8]
- Kazdin's social competence training program[9] treats antisocial psychiatric inpatients and outpatients using the methods described above. Participants often made long-standing therapeutic gains at home and in school but continued to exhibit deviant behavior after the training.
- The Brainpower program seeks to reduce the number of times that African American boys with high teacher/peer ratings for aggressiveness attribute hostile intentions to other people in ambiguous scenarios (situations in which the motivation of the participants is unclear) (Hudley, 1994). After completing 12 weeks of cognitive retraining, late-elementary school children were less likely to attribute hostile intentions to others than they were before the program.
- Under the Positive Adolescents Choices Training (PACT) program, African American middle school students were trained to give and accept feedback, resist peer pressure, solve problems, and negotiate effectively (Hammond and Yung, 1991, 1992; Brewer et al., 1995). Suspensions and expulsions decreased among students in the intervention group and increased among students in the control group. Unfortunately, this study encountered a number of problems. Intervention and control groups may not have been comparable at baseline, teachers were not blind to the assignment of students to the two groups, and the authors did not present the statistical significance of their results (Brewer et al., 1995).
- Lochman's school-based anger coping (AC) program helped aggressive and disruptive boys understand the physiology of aggression, especially anger, and taught them coping strategies such as self-talk (e.g., calming oneself down by telling oneself, "Maybe he didn't mean that. If I start a fight, I'll get put in detention").[10] Three years later, the intervention group reported less substance abuse and greater self-esteem and social problem-solving skills. However, neither self-reported delinquency rates nor observations of classroom behavior indicated a difference between intervention and control groups. Researchers concluded that the program's long-term effects could be enhanced by adding parent training (Lochman, 1992).

**Academic skills enhancement.** Poor school achievement, poor attendance, and school suspensions contribute to antisocial behavior (American Psychological Association, Commission on Violence and Youth, 1993). A review of the effects of well-designed programs on the academic and behavioral outcomes of at-risk youth found that these programs have a positive impact on academic functioning (Maguin and Loeber, 1996; Moffitt, 1990). The most effective are law-related moral education programs, which educate youth about the role of law in society (Arbuthnot and Gordon, 1986; Gottfredson and Gottfredson, 1992). Many academic programs, however, target elementary or high school students who have already developed academic and behavioral problems. This may be the reason that programs offering reading instruction and tutoring are less effective than law-related education. Basic skills programs may be more effective with younger children (Kellam et al., 1998).

**Medication.** ADHD, a common risk factor for conduct disorder, is commonly and effectively treated through psychostimulant medication (Abikoff and Klein, 1992; Spencer et al., 1996), which can reduce symptoms of inattentiveness, motor overactivity, and impulsiveness. The medication can also improve poor peer interactions (Gadow et al., 1990; Pelham et al., 1993) and improve short-term academic functioning for youth with ADHD (Greenhill, 1995).

The effect of medication on conduct disorder is not yet known, largely because of the great overlap between children with ADHD and conduct disorder. However, improvements in the behavior of children diagnosed with both ADHD and conduct disorder who are treated with stimulant

[8] Shure and Spivack, 1980, 1982, 1988; Spivack and Shure, 1989.

[9] Kazdin et al., 1989; Kazdin et al., 1987b.

[10] Lochman, 1992; Lochman et al., 1984; Lochman and Curry, 1986.

medications indicate that medication may be useful in the treatment of conduct disorder alone (Hinshaw, 1991; Spencer et al., 1996).

Abikoff and Klein (1992) note the following limitations of using stimulant medication as a single intervention in treating ADHD:

- Medication wears off by the end of the day, creating management problems at home.
- Treatment gains are short-lived and limited to the length of the medication's effects.
- Not all children respond positively to medication.
- Some families are unwilling to use medication.

**Other interventions.** Other youth-focused interventions include individual psychotherapy and behavioral anger control programs; however, there is little evidence documenting the effectiveness of these interventions for preventing antisocial behavior (Tolan and Guerra, 1994).

### Classroom-Focused Components

**Classroom contingency training.** These interventions may be classroom or individually based, but they take place within the classroom as opposed to the entire school. Classroom contingency training applies the techniques of parent management training to the classroom by establishing clear routines and expectations about attendance, behavior, and classroom procedures (Hawkins, Doueck, and Lishner, 1988). Teachers are trained to provide targeted and contingent encouragement and praise. Research has found that disruptive behavior and vandalism costs decreased in intervention schools while they increased in control schools.[11]

**Academic skills enhancement.** Hawkins, Doueck, and Lishner (1988) combined classroom contingency training with academic skills enhancement. The program also included teacher training and supervision, proactive classroom discipline, use of student learning partners, and clear learning objectives. At the end of the academic year, students exposed to the intervention were more positive, and school disciplinary problems were fewer among children who received classroom contingency training than among those who did not. There were no effects on delinquency, however.

**Token economy.** In a Baltimore, MD, program, children in grades 7 to 9 with a history of suspensions were assigned to small classes of 10 to 15 students (Safer, 1996). In a token economy, they received points for good behavior that could be used for privileges, including a shortened school day. The program also attempted to develop a home-based token economy with parents. Youth in the intervention group had fewer expulsions or suspensions, but there were no differences in attendance or standardized achievement scores. The program may have had longer-term effects, however. After students in the intervention group completed the program, they were more likely to enter high school and have better attendance and classroom behavior while there than those in the control group.

### Peer Group-Focused Components

**Peer mediation.** Peer mediation programs (Hawkins, Catalano, and Brewer, 1995) train youth to act as mediators in school settings by listening, communicating, identifying points of agreement, and arriving at nonviolent solutions to conflicts (Brewer et al., 1995). Most evaluations of these programs have not been properly designed, and few have shown positive effects (Lam, 1989).

**Conflict resolution.** School-based conflict resolution programs are popular and widely used in middle and high schools. These psychoeducational programs increase students' knowledge of the causes and consequences of violence, improve students' self-control, and help students develop social problem-solving skills. Evaluations of some new programs that suggest promise have emerged recently (since the preparation of Loeber and Farrington, 1997).

The Resolving Conflict Creatively Program (RCCP) attempts to alter social processes in elementary school children by changing classroom contexts, training staff and students in conflict resolution, and promoting peer mediation (Aber et al., 1998). Over the course of a school year, children in classrooms where materials were presented showed lower levels of aggressive fantasies and other social cognitive processes usually associated with aggressive behavior. Another program for elementary school children (Stevahn et al., 1996) compared promoting cooperative learning in the classroom with didactic training in conflict resolution in curriculums that are integrated into academic programming. Children exposed to both components showed the most learning and retention of conflict resolution strategies. Moving beyond children's responses to paper-and-pencil measures is very much a concern in this field, so that research needs to be evaluated in terms of behavioral changes that would indicate an impact on serious and violent juvenile offending. One well-documented program that has shown behavioral effects is the Second Step Curriculum (Grossman et al., 1997); direct observations showed decreases in physically negative behavior that were maintained 6 months later. Preliminary results from RCCP also suggest that the program has a positive impact on teacher ratings of children's aggressive and prosocial behavior (Aber, Brown, and Henrich, 1999).

Webster (1993) is skeptical about the effectiveness of conflict resolution programs for a number of reasons. First, these standardized programs assume that all students are similar, when in fact youth begin exhibiting antisocial behavior at different points and in response to different risk factors. These programs are likely to intervene too late in the development of youth whose social skills deficits originate in childhood. Second, social skills deficits, which these programs try to remedy, may not be at the root of interpersonal violence, so addressing the deficits will not necessarily reduce the violence. Third, these programs may not be sufficient because many other factors contribute to youth violence.

## Examples of Well-Designed Programs

Much can be learned from established programs. The following are systematically evaluated multicomponent programs that focus on children at three developmental periods: preschool age, including infants and toddlers; elementary school age; and adolescence. These programs may influence later antisocial behavior.

### Programs for Preschool-Age Children

Programs targeting children before they enter school can address a range of individual and family risk factors that are precursors to antisocial behavior. Unfortunately,

[11] Mayer and Butterworth, 1979; Mayer et al., 1983; Sulzer-Azaroff and Mayer, 1994.

few of these programs have been tested longitudinally because of cost and difficulty. Those that have been evaluated are discussed in more detail below.

Early intervention programs for preschool-age children may help prevent antisocial behavior, particularly because they intervene through the child's broad environment rather than through a single risk factor. Because some of these programs were instituted in the 1960's, 10-year longitudinal studies have been completed for the Syracuse University Family Development Research Project, the Yale Child Welfare Project, the Houston Parent Child Development Center, and the High/Scope Perry Preschool Project.

Although the results of these programs have been encouraging (Yoshikawa, 1995), the mechanisms of change could not be identified. The programs shared a number of features. They were intensive, included home visits, and addressed the child's early development, some before birth. They also included child education and family support, a theoretical basis with curriculums specified in treatment manuals, low staff-to-child/parent ratios, extensive training, and child- and family-focused components.

**Universal interventions.** The Montreal Home Visitation Study (Larson, 1980), an example of a universal intervention for infants and toddlers, tested the effects of home visits on 115 women. The visits focused on caretaking, mother-infant interaction, the mother's social support and social interactions, and child development. Children in families that received prenatal and postnatal visits sustained fewer injuries than children in the other groups and also received higher scores on the quality of the home environment provided to them.

These interventions address risk factors on a number of levels. For example, the Syracuse University Family Development Research Project (Lally, Mangione, and Honig, 1988) provided educational, nutritional, health, safety, and human services resources to 109 low-income, primarily African American families. The program, which also included home visits and quality childcare, decreased the children's involvement with the juvenile justice system. When the children were between 13 and 16 years old, 4 of the 65 treated children had probation records at followup, compared with 12 of the 54 children in the control group.

The Yale Child Welfare Project[12] targeted 17 impoverished, pregnant, African American women between 1968 and 1970, matching them with controls. The program provided a variety of services that began during pregnancy and continued until the children were 30 months old, including an average of 13 months of childcare. Ten years later, mothers in the intervention group had more education, were more likely to be employed, and had fewer children who were spaced farther apart, compared with mothers in the control group. Children in both groups remained the same in IQ and academic achievement, but children in the intervention group had better attendance records and exhibited less antisocial behavior than those in the control group.

The Houston Parent Child Development Program (Johnson and Walker, 1987) provided home visits, classes for mothers, and 4 half-days per week of preschool for children more than 2 years old in low-income Mexican American families. In a 5- to 8-year followup, treated children were found to be less obstinate, hostile, and aggressive than children in the control group. Attrition from the program, however, was very high.

The PARTNERS program supplemented Head Start programs by providing training to parents and teachers to promote consistency from home to school (Webster-Stratton, 1998). Parents receiving training were more positive, less critical, and used less physical discipline than parents not receiving training. Seventy-one percent of parents in the experimental group showed a decrease in critical statements compared with 29 percent of parents in the control group. Children in the experimental group were more compliant and prosocial and displayed less negative behavior than those in the control group. Also, most eligible parents signed up for the program, and participant satisfaction was high.

**Selected interventions.** The University of Rochester Nurse Home Visitation Program, an example of a selected intervention for infants and toddlers, recruited 400 low-income women who were pregnant and raising children in semirural New York (Olds et al., 1986; Olds et al., 1988). The program offered four levels of intervention, including information and support for child health and development, free transportation to prenatal and well-child medical visits, home visits by nurses during pregnancy, and followup visits until the child's second birthday.

The program found that treated mothers who smoked were more likely to have full-term, heavier babies than untreated mothers who smoked. Treated mothers were also less likely to punish their children or to be seen in emergency rooms or by physicians for infant poisonings and injuries. They were also more likely to provide their children with appropriate play materials, return to school, be employed, and delay future pregnancy (Olds, 1996).

The authors of a separate cost analysis (Olds et al., 1993) found that the program saved the Federal Government $1,772 per family (in 1980 dollars) and $3,498 per low-income family, including Aid to Families With Dependent Children, child protective services, Medicaid, and food stamps. These figures do not take into account any long-term savings resulting from delinquency prevention.

The goal of the High Scope/Perry Preschool Project, a selected intervention for preschoolers, was to prevent school failure in poor 3- to 4-year-old African Americans (Berrueta-Clement et al., 1984). The program provided home visits and monthly small group meetings for parents. Children in the intervention group performed better academically, were more likely to graduate from high school and be employed, and were less likely to be

[12] Provence and Naylor, 1983; Provence, Naylor, and Patterson, 1977; Rescarla, Provence, and Naylor, 1982; Seitz, Rosenbaum, and Apfel, 1985; Trickett et al., 1982.

on welfare than children in the control group. Rates of juvenile delinquency also were reduced.

## Programs for Elementary School Children

**Universal interventions.** The Seattle Social Development Project, a universal intervention for elementary school children, is one of the few programs to report significant long-term reductions in violent criminal behavior.[13] The program offered parent management training, social competence training, and support for academic skills to increase the child's attachment to school and family, reduce involvement with antisocial peers, and reduce aggressive behavior. Six years after program completion, students reported a lower incidence of violent criminal behavior, heavy drinking, sexual intercourse, and pregnancy (Hawkins et al., 1999). They also reported higher academic achievement and less misbehavior in school. Checks of school and court records supported these reports, although not at statistically significant levels.

The 2-year Baltimore Prevention Study examined academic and behavioral interventions in three schools.[14] While teacher ratings of shyness and aggression were lower and reading achievement was higher in the intervention groups after 1 year, the effects on behavior did not continue after the end of intervention, particularly for girls.

The practice of using teachers in universal programs both to implement the program and to evaluate change in participating children biases the ratings. Using multiple informants (persons supplying data to the investigator) across settings will result in more accurate and less biased evaluation (Hawkins et al., 1992).

**Selected interventions.** Tremblay and colleagues, in a selected intervention for elementary school children, used parent management training and social competence training in a 2-year program, which resulted in lower rates of delinquency among treated boys after 6 years.[15] Another

selected intervention, the FAST Track program, addresses rural and urban kindergarten children and ethnic groups with high rates of disruptiveness (Conduct Problems Prevention Research Group, 1992). The program intervenes at school entry and between elementary and middle school and uses parent management training, weekly home visits, social competence training, academic tutoring, and classroom contingency training, which allows for integration across settings. Results have included more appropriate parenting, greater problem solving among children, and less disruptive and aggressive behavior (Conduct Problems Prevention Research Group, 1996).

The Metropolitan Area Child Study addresses children's understanding of their context and social environmental risk factors through classroom and family intervention, social competence training, and parent management training.[16] This program shares important features with the FAST Track program. They both use multiple-stage screening procedures to target high-risk children. They also use randomized experimental designs with multiple measures and multiple informants for assessment. Intervention broadly targets the child and family in both school and home settings. The programs also are sensitive to the communities in which they are implemented.

Children with ADHD, who are at greater risk for antisocial behavior, can benefit from selected interventions that include medication. Hinshaw and colleagues (1998) examined two types of behavioral programs: direct contingency management procedures and those involving parent management training plus teacher consultation. They found that these approaches can be effective in combination with medication, but that medication alone is more effective than behavioral treatment alone.

Firestone and colleagues (1981) looked at 7-year-olds with ADHD who were treated with parent management training alone, medication alone, or both. Only medication enhanced attention and impulse control. Medication also improved academic achievement more than parent management training alone. Gittelman and colleagues (1980) studied three groups of 6- to 12-year-olds, each of which received one type of treatment: a combination of parent management training and school consultation; stimulant medication; and both the training/consultation and medication. The latter group improved the most. The group that received only medication improved to a lesser degree, and the behavior management group improved the least.

Another study (Horn et al., 1991; Ialongo et al., 1993) assigned 96 families with ADHD children to one of six groups that received either a placebo, a high dose of medication, or a low dose of medication. Half the children in these families also received social competence training, with their parents receiving parent management training. Researchers found that combined treatment had no advantage over medication alone and that none of the groups maintained treatment gains nine months later.

Pelham and coworkers (Carlson et al., 1992; Pelham et al., 1993) examined a treatment that combined stimulants and classroom contingency training for boys

[13] Hawkins et al., 1999; Hawkins, Von Cleve, and Catalano, 1991; O'Donnell et al., 1995.

[14] Kellam and Rebok, 1992; Kellam et al., 1994; Kellam et al., 1991.

[15] McCord et al., 1994; Tremblay, Mâsse et al., 1992; Tremblay et al., 1991; Tremblay et al., 1995; Tremblay, Vitaro et al., 1992; Vitaro and Tremblay, 1994.

[16] Guerra et al., 1996; Guerra et al., 1995; Tolan and McKay, 1996.

with ADHD at an intensive summer camp. Medication, with or without classroom contingency training, improved all behavioral and academic outcomes. The training, without medication, improved only behavioral outcomes. Another study by this group suggested that children with ADHD who receive behavioral treatments might be able to take less medication than those who receive medication alone (Carlson et al., 1992).

The longest trials of behavioral techniques in comparative treatment studies for ADHD have lasted only a few months. These comparative studies have only begun to build on successful treatment components. One early promising study (Satterfield, Satterfield, and Schell, 1987) found that long-term treatment packages that included individual, family, and educational therapy tailored to families' needs were effective in increasing academic skills and decreasing antisocial behavior.

Long-term, multicomponent treatment packages may be best for treating children with ADHD and may result in reduced delinquent behavior, as indicated by the New York/Montreal Study (Abikoff and Hechtman, 1996). The largest study of this kind, the National Institute of Mental Health (NIMH) Multimodal Treatment Study of Children with ADHD, cosponsored by the U.S. Department of Education, Office of Special Education Programs, involves 576 children (MTA Cooperative Group, 1999a, 1999b). It will evaluate the long-term effectiveness of medication or behavioral treatment compared with a combination of the two, at the same time comparing these approaches to community care.

Psychostimulant medication is useful in treating children with ADHD, but research has not yet shown whether it can prevent antisocial behavior in the long term. It allows children to function better in the short term, giving them the chance to develop adaptive, protective skills.

**Indicated interventions.** Webster-Stratton and Hammond (1997) conducted an indicated intervention for elementary school children that divided families into a parent management training group, a child training group, a child and parent training group, and a waiting-list control group. At the end of intervention, all three intervention groups had made significant improvements that were maintained at a 1-year followup. Although the combined group showed the most significant improvements in child behavior at followup, all three groups showed decreased conduct problems as reported by teachers.

Kazdin, Siegel, and Bass (1992) studied 97 children who had been in a child psychiatric hospital (Kazdin et al., 1987a) or who had been referred for antisocial behavior problems to parent management training, social competence training, or both (Kazdin, Siegel, and Bass, 1992). One year after treatment, both inpatient and outpatient children and families who had received combined treatment had improved their behavior, but only 50 percent of these children moved into the normal range of behavior problems, according to parents and teachers (see also Kazdin et al., 1987a).

## Programs for Adolescents

Most youth who exhibit serious antisocial behavior begin to do so by age 15. At this point, it is usually easy to identify these youth, but their behaviors may be so entrenched that they are resistant to change. Also, adolescent peer groups, which exert a powerful influence, are often targeted for change or as a vehicle of change. That is, the individual is encouraged to give up his or her group, or members of the group are used as counselors or mediators. Programs for adolescents are less likely to involve families than programs for other ages, although the family still has a profound influence on the youth.

**Universal interventions.** Aimed at reducing violence or resolving conflict, universal interventions for adolescents are a recent development;[17] many of them target African American youth.[18] However, these programs have several problems, including:

- Reliance on self-report measures or nonblind teacher evaluations that are subject to bias.
- Use of anger control strategies that do not have demonstrated effectiveness (Tolan and Guerra, 1994).
- Lack of randomized assignment to intervention and control groups.
- High attrition rates (see Brewer et al., 1995, for a review).
- Paradoxical effects, which may reflect treatment unreliability or may lead to worsened outcomes for some groups of children.

Farrell and Meyer (1997) experienced this last problem in a study testing a social skills and problem-solving curriculum for African American sixth graders. Boys in both the intervention and control groups had an increased number of problems during the study, although boys in the intervention group experienced a lower rate of increase than did boys in the control group. The rate of increase was higher among girls in the intervention group than among girls in the control group. The distinction may have been caused by differences in patterns of aggression among girls or by the mixed-sex groups and male group leaders used in the study.

Orpinas and colleagues (1995) examined the Second Step curriculum (Committee for Children, 1990), a conflict resolution program using peer mediators. The study reported that the intervention had no effect on aggressive behavior and produced marginal improvements elsewhere. However, the choice of school or classroom was not random (only "good" teachers were assigned to implement the program), and only self-report measures were used.

**Selected interventions.** Gottfredson (1986) evaluated a selected intervention for adolescents, Positive Action Through Holistic Education (PATHE), a multicomponent school-based program for impoverished 11- to 17-year-olds. The program sought to improve student attachment to school, academic success, self-esteem,

[17] Brewer et al., 1995; Hawkins, Catalano, and Brewer, 1995.

[18] Hammond and Yung, 1991, 1992; Ringwalt et al., 1996.

and student-faculty communication through teacher training and student counseling, tutoring, and a student leadership system. Communication with families was also enhanced. The program had no effect on antisocial behavior, and participants reported higher drug involvement at posttest.

Gottfredson and Gottfredson (1992) evaluated Project STATUS, a supplemental law-related and moral development curriculum, in which students took part in field trips and structured role-play. This curriculum positively affected academic performance, as demonstrated by higher grades and graduation rates for students in the intervention group. The same students also reported less delinquency and drug use and higher self-esteem than did students in the control group.

Gabriel (1996) evaluated Self-Enhancement, Inc., a violence prevention program for African American students in grades 8 to 10. The program sought to enhance intermediary protective factors such as self-control, self-efficacy, social competence, and social bonding through field trips, conflict resolution, and student-led anti-violence campaigns. Attrition was 28 percent, and targeted protective factors did not improve. Intervention students reported decreased fighting and weapon carrying after 1 year in the program.

**Indicated interventions**. Henggeler and colleagues have examined multisystemic therapy as an indicated intervention for adolescents.[19] Because this approach specifically targets serious juvenile offending, the results are especially important.[20] Multisystemic therapy combines family therapy, parent management techniques for older children, and problem-focused interventions in peer and school settings in an intensive family preservation treatment program. It has been found to increase family cohesiveness (Henggeler, Melton, and Smith, 1992), increase the adaptability and support of families of serious juvenile offenders (Borduin et al., 1995), and decrease father-mother and father-child conflict (Henggeler and Blaske, 1990). Treated adolescents were less likely to be rearrested and spent fewer days incarcerated than adolescents in the control group (Henggeler, Melton, and Smith, 1992). Overall recidivism for those completing multisystemic therapy was 22 percent; for those completing individual therapy, the rate was 71 percent. Treatment gains were maintained, even at the 4-year followup (Borduin et al., 1995). The dropout rates for those receiving multisystemic therapy were 10 percent and 15 percent, compared with 38 percent and 25 percent for those receiving individual therapy (Borduin et al., 1995; Henggeler, Melton, and Smith, 1992), probably because multisystemic therapy targets three or more systems and individual therapy usually targets only one.[21]

[19] Borduin et al., 1995; Henggeler and Blaske, 1990; Henggeler and Borduin, 1990; Henggeler et al., 1996; Henggeler, Melton, and Smith, 1992.

[20] Borduin et al., 1995; Henggeler et al., 1996; Henggeler et al., 1993.

[21] OJJDP supports multisystemic therapy programs. For more information about multisystemic therapy, see Henggeler, 1997, and Muller and Mihalic, 1999.

## Limitations to Prevention Strategies

Evaluations of these prevention strategies have brought to light a variety of problems, including recognizing developmental issues for children and adolescents, defining and measuring outcomes, and relating selection criteria and targeted outcomes to risk factor research, and other practical issues, all of which are discussed below. Careful consideration of these problems will help researchers and programmers design programs that better identify and address targeted risk factors and outcomes.

### Recognizing Developmental Issues

**Infants and toddlers.** Programs for infants and toddlers focus on parent-child interactions through education and provision of emotional and practical support to the primary caregiver. They often target poor families and are delivered in the hospital or the family's home. However, these intervention programs have not been standardized and thus may not be highly reliable or easily disseminated. They do not include behavioral management techniques for parents that can reduce antisocial behavior among children and adolescents. Finally, long-term followup on child behavior has been limited, focusing instead on care of the child and child adjustment, especially in terms of health.

**Preschool children.** Most programs for preschool children have not included parent management training. Preschool interventions have not targeted peer relations, which are indicators of outcome. Although some of these programs have included long-term followup and have shown positive effects on antisocial behavior, researchers have not been able to attribute these positive outcomes to a specific cause. The complex social and economic changes of the past 20 years make analysis difficult (Yoshikawa, 1995). Current studies should therefore include the standardized interventions described in manuals and regular evaluations so that successful programs can be replicated.

**Elementary school children.** Programs for elementary school children are usually school based. Unfortunately, families are not often involved in these programs, and children thus tend to drop out. Even if a program offers parent groups, not all parents will take advantage of them. These programs also rarely assess or address

ADHD. An additional problem in the design of school-based programs is the effect of "spillover," which occurs when both control and intervention classrooms are located within the same school. Control classrooms may adopt elements of the intervention (spillover), thus affecting the results of the study.

**Adolescents.** Programs for adolescents often focus on educational approaches but lack family components, especially in universal programs where it is difficult to involve parents of nonreferred adolescents. If the family is not involved, the youth may have difficulty internalizing and generalizing intervention lessons across settings. This may be one reason why conflict resolution programs show such uneven results and sometimes paradoxical effects. Evaluators of conflict resolution programs should supplement their usual psychoeducational approach with information from independent records, such as arrest data (Bry, 1982; Bry and George, 1980) or vandalism records,[22] or raters who are blind to the intervention; otherwise, the success of the curriculums will not be measurable (Webster, 1993).

## Defining and Measuring Outcomes

**Defined targets.** Programs should have clearly defined targets. These should be outcomes that are developmentally linked to antisocial behavior or to specific risk or protective factors. Targeting hypothesized risk factors such as moral reasoning may not result in a corresponding change in child behavior.

**Effectiveness.** When some risk factors, such as family process or early disruptive behavior, are targeted, effect sizes are small, even when the targeted processes are influenced and the changes are statistically significant. The effectiveness of the intervention may be called into question because the targeted process is influenced by a variety of factors that are highly interwoven and cannot be changed by a single-focus intervention. One exception is medication studies of children with ADHD, which show large effect sizes for inattention and disruptiveness or substantial gains 1 year after the treatment (Kazdin et al., 1987a; Kazdin, Siegel, and Bass, 1992).

**Specificity.** Specificity is another issue. Although antisocial children are likely to have certain deficits, not all of them will show the same pattern of problems. It is important to choose an intervention that directly addresses an identified deficit in a subgroup of children. Otherwise, the intervention or treatment evaluation may give the false impression that the program was only moderately effective, when in fact it was very effective with a subgroup of children. More research needs to be done to determine which interventions are most effective for specific risk factors.

**Neglected outcomes.** Studies also should address neglected outcomes. Most interventions focus on overt aggressive behavior, with insufficient attention paid to covert antisocial acts. Although physical aggression is easily observable, most later delinquency is covert in nature.

**Long-term followup.** Most studies have not included long-term followup, even at 1 year. Without it, long-term maintenance of treatment gains cannot be demonstrated.

**Gender.** Because the development of antisocial behavior may be different for boys and girls, gender must be considered in program design (Wasserman, 1996). Most interventions are designed with boys in mind and have been applied only to boys. When applied to girls, they may be less effective (Farrell and Meyer, 1997; Kellam et al., 1998). As a result, designers of prevention programs should consider new research on female antisocial behavior (Crick, Bigbee, and Howes, 1996; Crick and Grotpeter, 1995; Zoccolillo, 1993).

## Relating Selection Criteria and Targeted Outcomes to Risk Factor Research

Categories of risk factors for delinquency and violence have been conceptualized in a variety of ways. Hawkins and Catalano (1993), for example, define categories of risk at the levels of community, family, school, and so on. However, these categories do not readily correspond to the selection criteria or outcomes studied in prevention research. That is, risk factors for serious, violent juvenile offending are not necessarily the outcomes targeted by preventive interventions. The problem lies in distinguishing between those factors used to select children at high risk and those factors that are themselves targets of intervention. For example, community risk factors such as poverty are commonly used as selection criteria for studies, but they are often inaccurate indicators of individual risk and are seldom targeted for intervention. The opposite tends to be true with family risk factors. Families are assumed to have family management problems if they are selected on the basis of other risk factors, such as the child's aggressive behavior or poverty.

School and individual risk factors that are used as selection criteria are often the focus of intervention. However, targeted outcomes based on these criteria may not be linked to offending. For example, social competency, peer relations, self-control, ethnic identity, or student-faculty communication have not been proven to contribute to antisocial behavior, nor have they been proven to be protective factors that will lessen the risk for antisocial behavior. Protective factors are not simply the opposite of risk factors.

Some risk factors have not been widely examined in prevention research. Family history of problem behavior is an excellent selection criterion,[23] and younger siblings of delinquents are an obvious, but underaddressed, target group. As discussed above, ADHD is an important selection criterion and intervention target, but programs targeting delinquency have yet to address the disorder systematically.

## Practical Issues

**Limitations of single-focus preventions.** Antisocial behavior is rarely the result of a single risk factor.[24] Youth live in layered and complex environments that contain multiple risk factors at different levels. As a result, successful approaches to prevention must incorporate components directed at more than one type of risk factor.[25] Designers of prevention programs must consider:

- Available institutional resources. For example, is the school able to run the program?
- The family environment. For example, will the family become involved? Does the family have other problems that need to be addressed?
- The child's chronological age and developmental level. For example, what interventions are appropriate given the

[22] Mayer et al., 1983; Mayer and Butterworth, 1979; Sulzer-Azaroff and Mayer, 1994.

[23] Cadoret, 1991; Patterson, 1984; Rowe and Gulley, 1992; Wasserman et al., 1996.

[24] Elliott, Huizinga, and Ageton, 1985; Patterson, Reid, and Dishion, 1992; Simcha-Fagan and Schwartz, 1986.

[25] Coie and Jacobs, 1993; Dodge, 1993; Tremblay et al., 1995.

child's developmental level? Is the child facing a school transition, such as entry into a new school?

Antisocial behaviors and the impact of risk factors vary with a child's age and development. Transitions between school levels are important intervention points (Coie and Jacobs, 1993), partly because they reconstitute the child's peer group. At such transitions, other risk factors, such as neighborhood influences on the school, come into play.

**Recruiting and retaining participants.** Two practical problems hamper the design and implementation of research studies and programs that target serious and violent juvenile offending. The first problem is the feasibility of recruiting and retaining participants. Although school-based programs are popular because children provide a "captive audience," it is difficult to involve families in these programs. Outpatient child psychiatry clinics also have a high rate of missed appointments among families with antisocial children. Retaining control-group families is even more difficult.

In a pilot randomized clinical trial in New York City, Miller and Klein (1996) used a variety of methods to maintain parent participation. The program paid families for assessments and for the costs incurred in attending the clinic, provided food, performed initial assessments in families' homes, and sent holiday cards to families. Each family provided the telephone numbers and addresses of two family members or friends so that families involved in the program could be contacted, and family members in both the control and intervention groups received referrals for services. When appropriate, bilingual interveners conducted home visits in Spanish. The study had a low attrition rate of 10 percent and, using a consumer satisfaction questionnaire (Webster-Stratton, 1989), researchers found that satisfaction among parents was high.

**Identifying necessary components.** The second practical problem is identifying necessary components. As noted earlier, multifaceted interventions that target the development of chronic aggression are the most effective. Because home and peer settings establish and maintain antisocial behavior, interventions that include parent management training and a peer component are more successful. Programs also should enhance academic skills and provide for the treatment of conditions such as ADHD. If interventions take place early in the child's development and later during developmental transitions, such as those between school levels, the child will be better able to generalize one set of skills across all settings.

## Conclusion

Research on the prevention of serious and violent juvenile offending reveals many useful lessons:

- Successful interventions are those that address multiple risk factors.
- Single-focus interventions are unlikely to be effective because antisocial behavior emerges from a complex array of risk factors.
- Programs that involve the family will be more effective than those that do not.
- Programs that identify and refer for treatment children with ADHD or other disorders will have more powerful, long-range effects than those that do not.
- Interventions that are successful with specific groups of youth may not transfer to a universal setting where fewer youth exhibit similar problems.
- Interventions must have a theoretical basis and be clearly and concretely described so that they can be systematically evaluated and replicated.
- Researchers must consider the child's development and larger context, regardless of the chronological age or risk factors involved.

Keeping these lessons in mind, researchers and program planners can design more effective long-term interventions to prevent serious, violent juvenile offending.

## For Further Information

The following publications are available from the Juvenile Justice Clearinghouse (JJC). For more information or to order a copy, contact JJC, 800–638–8736 (phone), 301–519–5600 (fax), puborder@ncjrs.org (e-mail), www.ojjdp.ncjrs.org (Internet).

- **Summary of Study Group's Final Report.** To help communities and practitioners learn more about serious and violent juvenile offenders, OJJDP released a Bulletin that summarizes the Study Group's final report. The 8-page Bulletin, *Serious and Violent Juvenile Offenders* (May 1998), is available (free of charge) from JJC.
- **Final Study Group Report.** The Study Group's final report, *Never Too Early, Never Too Late: Risk Factors and Successful Interventions for Serious and Violent Juvenile Offenders* (Loeber and Farrington, 1997), is also available (for a fee) from JJC.

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