

RESEARCH

PREVENTING SCHOOL FAILURE, DRUG USE, AND DELINQUENCY AMONG LOW-INCOME CHILDREN: Long-Term Intervention in Elementary Schools

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A six-year, school-based prevention program, which modified classroom teacher practices, offered parent training, and provided child social skills training, was evaluated for its effects on school failure, drug abuse, and delinquency among low-income urban children. Compared to a low-income control group, children in the intervention group showed enhanced school commitment and class participation. The girls in the group also evidenced lower rates of substance use initiation, while the boys exhibited increased social and school work skills.

Poverty places children at risk for school failure (Goodlad, 1984) and school dropout (Wittenberg, 1988), for serious delinquency and crime (Blumstein, Cohen, Roth, & Visher, 1986; Elliott, Huizinga, & Menard, 1989), and for alcoholism and other drug problems (Robins & Ratcliff, 1979). The problems facing children in poverty are particularly pressing now that one-fourth of America's students in grades one through 12 live in poverty, and they will become more pressing by the end of the decade when it is estimated that one-third of students in American schools will live in poverty (Jennings, 1988). Evidence suggests that American society is failing to

provide adequate schooling or skills to low-income students. Over half of poor students do not graduate from high school (Bastian, Fruchter, Gittell, Greer, & Haskins, 1985).

Significant federal and state investments have been made in programs aimed at counteracting the educational disadvantage of poverty (Jennings, 1988; Kober, 1989). Head Start, for example, costs about \$1.2 billion annually in federal funds, although it reaches only 20% of poor preschool children each year (McGeary, 1990). Chapter 1 of the Elementary and Secondary School Improvement Act supports special compensatory services for low-achieving stu-

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dents in schools with high concentrations of poor children and, although there are no recent data on the proportion of recipients who are poor (McGeary, 1990), these services have been estimated to reach about 25% of all school-aged children at some point during their school careers (Kennedy, Birman, & Demaline, 1986). The Hawkins Stafford Elementary and Secondary School Improvement Amendments of 1988 (PL 100297) authorized the expansion of Chapter 1 services so that all eligible children would be served by 1993; they raised spending ceilings, concentrated more money on the poorest schools, strengthened parental involvement, and added a number of new service programs (Kober, 1989; Riddle, 1989).

The success of Chapter 1 programs has been mixed, whether offered through pull-out (removing children from their regular classrooms) or in-class programs (Archambault, 1989; Slavin, 1989), and several limitations have been identified. For one, the focus of Chapter 1 interventions is strictly on the individual when, in fact, other factors may contribute to academic underachievement. Another limitation is that, although Chapter 1 programs may accurately target problems of academic underachievement, they commonly do so only after a child has been identified and assessed as having a problem that warrants special services. Support services are generally provided only after some history of underachievement and consist of strictly remedial educational services. This lack of a preventive aspect may make the problem more difficult to counteract.

Numerous studies have identified relationships among types of problem behavior. School failure, dropout, and misbehavior have been found to be closely related (Gold & Mann, 1984). Similarly, school failure and delinquency (Gottfredson, 1981), as well as substance abuse and delinquency, have been correlated (Blumstein, Cohen, Roth, & Visher, 1986; Donovan & Jessor, 1985). Substance abuse has also been

linked to failure to graduate from high school (Weng, Newcomb, & Bentler, 1988). Whether these types of behavior are part of a "deviance syndrome" (Donovan & Jessor, 1985; Jessor & Jessor, 1977) or represent more distinct behavior patterns (Gillmore, Hawkins, Catalano, Day, Moore, & Abbott, 1991), studies of overlap in such behavior have found correlations among school failure, school misbehavior, dropout, delinquency, and substance abuse. The existence of interrelationships among types of problem behavior suggests promise for preventive interventions that seek to reduce shared risk factors for adolescent problem behavior (Hawkins, Catalano, & Miller, 1992).

It seems probable that a preventive approach delivered to schools with a high proportion of low-income children might be more effective in reaching and counteracting the effects of poverty. Such an approach would seek to ensure that those already routinely involved in the education and socialization of children—teachers and adult caregivers—used effective teaching and family management skills to prevent learning and behavioral problems.

Considerable advances have been made over the past two decades in effective teaching (Brophy & Good, 1986; Slavin, 1989) and parenting skills (Bank, Patterson, & Reid, 1987). There is evidence that classroom interventions can reduce risk among children without the limitations of pull-out programs (Gottfredson, 1990). More recently, the idea of intervening simultaneously in multiple social units to reduce risks for academic failure and problem behavior has been supported (Comer, 1988; Hawkins, Von Cleve, & Catalano, 1991; Slavin, Madden, Karweit, Livermon, & Dolan, 1990). Although there are differences in specific approaches, several programs have begun to incorporate multiple interventions that attempt to influence individuals, families, and schools in a positive way. It is important to determine the extent to which strategies combining teacher and

parent training can reduce academic failure, drug abuse, and crime among children of poverty.

SEATTLE SOCIAL DEVELOPMENT PROJECT

The Seattle Social Development Project (SSDP) (Hawkins, Catalano, Jones, & Fine, 1987) is a long-term intervention that utilizes a risk-reduction strategy based on the premise that academic failure, delinquency, and drug abuse can be prevented by reducing, eliminating, or mitigating the effects of precursors or risk factors for these problems.

Theoretical Basis

The theory that guides the SSDP, the social development model (Catalano & Hawkins, *in press*), expands upon Hirschi's (1969) social control theory, which hypothesized that delinquent behavior was prevented by high levels of social bonding to conventional others. The expansion consists in specifying the processes of social learning (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Bandura, 1977) that are thought to determine children's levels of social bonding. Strong bonds to family and school are thought to be protective factors against drug abuse and delinquency; protective factors are influences or processes that modify, ameliorate, or alter response to risk exposure (Garmezy, 1985; Rutter, 1985; Werner, 1989). The Seattle project sought to reduce or eliminate the effects of exposure to risk by developing preventive interventions that primarily targeted the risk factors of academic failure, low commitment to school, early conduct disorders, family management problems, and involvement with antisocial others. Each intervention was designed to increase protective factors while reducing risk.

Social Development Model

In the social development model, an individual's level of bonding to a social unit is determined by the amount of opportunity for involvement available in that social

unit, by the skills the individual applies in participating in the social unit, and by reinforcements provided by the unit for the individual's behavior (Catalano & Hawkins, *in press*; Hawkins, Catalano, Morrison et al., 1992; Hawkins & Weis, 1985). The model also accounts for the importance of antisocial peers in influencing antisocial behavior (Elliott, Huizinga, & Ageton, 1985; Henggeler, 1989), since opportunities for involvement in such behavior, interactions with others involved in antisocial behavior, and perceived reinforcements for such behavior are hypothesized to increase the likelihood of antisocial behavior.

The social development model proposes that positive social bonds to school and family, and belief in family and school values, develop when students have opportunities for active involvement in the classroom and family, when classroom and family experiences lead to skills for successful participation, and when the classroom and family environment provide consistent reinforcement for productive involvement (Hawkins, Doueck, & Lishner, 1988; Hawkins & Weis, 1985). Teaching and family practices that maximize these conditions should promote successful experiences, enhance social bonding, and, when paired with risk reduction activity, lessen involvement in such problem behavior as academic failure, delinquency, and substance use among students.

INTERVENTION DESIGN

The SSDP is following a group of multi-ethnic urban students who entered the first grade in eight Seattle public schools in 1981. At that time, two schools were assigned to be full-control or full-experimental intervention sites. In the remaining six schools, entering first grade students were assigned to intervention and control classrooms randomly (Hawkins, Von Cleve, & Catalano, 1991). During grades one through four, newly entering students to project schools were assigned randomly to experimental and control classrooms and

added to the panel. In 1984, when the initial subjects entered the fifth grade, the panel was expanded to include all fifth-grade students in 18 Seattle elementary schools.* This modification led to the recapture of some intervention students and the addition of more control children to the study, resulting in a quasi-experimental design.

The project tested an intervention aimed at reducing the primary risk factors of school failure, early conduct disorders, family management problems, and involvement with antisocial others by combining modified teaching practices in mainstream classrooms, child social skills training, and developmentally adjusted parent training. The strategies were designed to enhance opportunities, skills, and reinforcements for children, both in the classroom and in family settings. It was hypothesized that there would be positive effects on student attitudes, achievement, and behavior.

Classroom Intervention

Teachers of children in the intervention group were trained in instructional methods with three major components: proactive classroom management, interactive teaching, and cooperative learning (Hawkins, Doueck, & Lishner, 1988; Hawkins & Lam, 1987). Project staff and school principals were trained to observe intervention teachers in the classroom and to provide feedback on use of the project teaching techniques. Intervention teachers were observed and given feedback approximately once every three weeks. First-grade teachers were also trained to provide cognitive problem-solving instruction using a curriculum developed by Shure and Spivack (1988).

Teachers of control students did not receive training in instructional skills from the project. However, they were observed for a series of four class periods on different days in the fall and spring each year to document their teaching practices.

Management. Proactive classroom management seeks to establish an environment conducive to learning, promotion of appropriate student behavior, and minimization of disruption in classroom activities. Intervention teachers were trained to establish classroom routines at the beginning of the year to create a consistent pattern of expectations. Teachers were taught to give clear and explicit instructions for student behavior and to recognize and reward attempts to comply. Teachers were also taught methods for keeping minor classroom disruptions from interrupting instruction and decreasing opportunities for learning. An integral part of proactive management is the frequent, appropriate use of encouragement and praise, thus identifying desirable behavior and reinforcing it (Brophy, 1987; Brophy & Good, 1986; Cummings, 1983; Emmer & Everston, 1980; Martin, 1977).

Interactive teaching. Intervention teachers were also trained to use interactive teaching methods based on the premise that, under appropriate instructional conditions, virtually all students can develop the skills necessary to succeed in the classroom; it has resulted in improved learning in a variety of classroom situations. It requires mastery of specified learning objectives before proceeding to more advanced work, and grades are determined by demonstrating mastery with improvement over past performance. Interactive teaching also emphasizes frequent monitoring of students to assess their comprehension of material as it is presented (Block, 1971; Bloom, 1976; Brophy, 1987; Brophy & Good, 1986; Cummings, Barber, & Cervo, 1982; Hawkins & Lam, 1987; Peterson, 1972; Stallings, 1980). The components of interactive teaching used in this project were assessment, mental set, objectives, input, modeling, checking for understanding, and remediation.

Cooperative learning. Intervention teachers were also trained to use cooperative

*A complete description of assignment to intervention or control condition is available from the second author.

learning methods involving small groups of students with different abilities and backgrounds as learning partners. Students work in teams to master curriculum material and receive recognition as a team for their group's academic performance. Students are dependent on each another for positive rewards, and team scores are based on each student's academic improvement over past performance, thus allowing each student to contribute to the team's overall achievement. The cooperative learning techniques used in this experiment were Student Teams Achievement Divisions and Teams-Games-Tournaments (Slavin, 1989, 1991). Research has shown that cooperative learning methods that incorporate team rewards, individual accountability, and equal opportunity for success are more effective than traditional instructional methods in improving student achievement, attitudes toward school, and mutual concern among students across racial groups (Slavin, 1991; Slavin & Madden, 1989).

Teacher training procedures. Teacher training was sequenced across the academic year, beginning in August with two days of proactive classroom management training and introduction to interactive teaching before school began, interactive teaching training in October, and training in cooperative learning methods in February (Hawkins, Catalano, Morrison et al., 1992). This schedule of training was designed to allow sufficient guided and independent practice in each method before the introduction of new methods. In addition, introduction of cooperative learning in midwinter appeared to generate an atmosphere of change and innovation in the classroom that helped keep the focus on learning during an educational season often described as the winter doldrums.

Goals. These classroom interventions targeted academic failure and early conduct disorders. Proactive teaching methods were expected to provide increased opportunities and reinforcement for classroom involvement, while interactive teaching and

cooperative learning were expected to promote opportunities, skills, and reinforcement for classroom involvement. This set of teaching practices was hypothesized to enhance the protective factors of attachment and commitment to school.

Child Intervention

Children in the intervention group received cognitive and social skills training in the first and sixth grades. The first-grade training program, Interpersonal Cognitive Problem Solving (Shure & Spivack, 1980, 1988), teaches communication, decision-making, negotiation, and conflict resolution skills. It seeks to increase problem-solving ability as a means of improving social adjustment (Shure & Spivack, 1980). First-grade teachers were instructed in the use of this curriculum to teach children how to think through alternative solutions to problems.

Sixth-grade students in the intervention group received four hours of refusal skills training that taught them to recognize trouble, to identify the legal name of the trouble, to name a number of consequences for engaging in the trouble, and to generate and suggest positive alternatives for students to stay out of trouble while retaining friends.

The child skills training component targeted the risk factors of early conduct disorders, peer rejection, and involvement with antisocial others. This intervention sought to develop skills for conventional involvement so that children could accomplish their goals without resorting to problem behavior.

Parent Intervention

Parent training classes appropriate to the developmental level of their children were offered on a voluntary basis during first, second, third, fifth, and sixth grades. Professional project staff of mixed ethnicity provided parenting workshops in collaboration with local school and parent councils.

Child behavior management. The first component, "Catch 'Em Being Good" (Hawkins et al., 1987), is a seven-session parent training curriculum that was offered to parents of first- and second-grade intervention students. The curriculum teaches parents how to observe and pinpoint desirable and undesirable behavior in their children, teach expectations for behavior, and provide positive reinforcement for desired behavior and moderately negative consequences for undesired behavior in a consistent and contingent fashion (Hawkins et al., 1987).

Academic support. The second component of parent training was an academic support curriculum, "How to Help Your Child Succeed in School" (Hawkins et al., 1987), offered in the spring of the children's second grade and again in the third grade. This four-session curriculum is designed to improve positive parent-child communication and involvement by teaching parents how to help their children develop reading and math skills (Hawkins et al., 1987). Analyses of the project at the beginning of fifth grade showed positive effects on bonding to family (Hawkins, Catalano, Morrison et al., 1992).

During the first three years of the project, parents of 19 low-income intervention students attended at least one of the parenting classes. The mean number of sessions of Catch 'Em Being Good attended was 3.2 (45%); the mean number for How to Help Your Child Succeed in School was 3.4 (85%).

Antisocial prevention. In the fifth and sixth grades, parents of intervention students were offered training in "Preparing For the Drug (Free) Years" (Hawkins, Catalano, Brown et al., 1988; Hawkins, Catalano, & Kent, 1991), a five-session risk-focused skills training curriculum. The goals were to *a)* establish a family position or policy on drugs on which all members could agree; *b)* teach parents to train their children in social influence resistance skills so they could stay out of trouble while maintaining peer friendships; *c)* teach par-

ents self-control skills to reduce family conflict; and *d)* create opportunities for children to contribute and learn through active involvement in new familial roles as they approached adolescence. Parents of ten low-income students attended the Preparing for the Drug (Free) Years classes. The mean number of sessions attended for both grades was 2.7 (54%).

Goals. These parent training interventions focused on reducing the risk factors of poor and inconsistent family management, family conflict, academic failure and low commitment to school, norms favorable to substance use, and association with antisocial peers. The classes sought to increase the level of bonding to the family and thus enhance protective mechanisms.

Parents of students in the control group did not receive training in parenting skills from the project but were surveyed to document their parenting practices.

This article investigates the effects of the SSDP on the basis of a set of hypothesized intervening variables and on the outcome measures of achievement, drug use, and delinquency for low-income urban children at the end of grade six.

METHOD

Data Collection

Data were collected from students during the fall of 1985, when normally progressing students entered fifth grade, and in the spring of 1987 when they completed sixth grade. A self-report survey administered to all study participants measured perceived opportunities, skills, and reinforcements in the classroom, peer interactions, and problem behavior, including drug use and delinquency. Student questionnaires were administered in classrooms. Project personnel read each question and its response categories aloud and instructed students to record their answers. Students were assured of confidentiality and monitored to ensure independent response. In addition, teachers completed the Teacher Child Behavior Checklist (Achenbach & Edelbrock,

1986) for each student in the spring of sixth grade.

Treatment status. The independent measure was treatment status. For the analyses, low-income students were divided into two conditions: control group (students who received no intervention in grades one through six) and full intervention group (students exposed to at least one semester of the combined intervention in grades one through four and to at least one semester of intervention in fifth or sixth grades). Students enrolled in either intervention or control classrooms for less than a semester prior to the fifth grade or during the fifth and sixth grades were classified as not having been fully exposed during these periods and excluded from the analyses.

Subjects

High-risk subsample. A high-risk subsample based on socioeconomic status was drawn from the larger general population sample. It included all low-income students (defined as those eligible for inclusion in the National School Lunch/School Breakfast Program in the fall of fifth grade) from the control and full intervention groups. At the beginning of fifth grade, this yielded a subsample of 177 (42%) low-income subjects (54% female, 46% male) from the fifth-grade sample of 424 subjects in the intervention and control conditions. Of this subsample, 102 were in the control group and 75 were in the intervention group. Ethnic differences in the sample were assessed by comparing proportions of European-Americans, African-Americans, Asian-Americans, and Other. No significant ethnic differences between the groups were observed in either the male or the female sample.

At the end of the sixth grade, 60% ($N=106$) of the fifth-grade low-income subsample completed sixth-grade surveys. Of these, 54% ($N=57$) were female and 46% ($N=49$) were male, yielding an intervention group of 44 (27 female, 17 male) and a control group of 62 (30 female, 32

male). Twenty-five (24%) were European-American, 44 (42%) African-American, 27 (25%) Asian-American, seven (6%) Native American and three (3%) identified as Other. Once again, no significant ethnic differences were found between the conditions in either the male or female sample.

General population sample. At the end of the sixth grade, of those in the general population sample, 314 (52%) were male and 294 (48%) were female; 284 (49%) were European-American, 129 (22%) were African-American, 111 (19%) were Asian-American, 31 (6%) were Native American and 21 (4%) were identified as Other. No significant gender difference was evident between the low-income and the general population samples. However, there was a significant ethnic difference between students in the low-income subsample and those in the general population sample ($\chi^2=42.33$, $p<.05$). Students in the former were less likely to be European-American (24% vs. 55%), and more likely to be African-American (42%) or Asian-American (24%) than students in the general population sample (19% and 22%, respectively).

Attrition. To test for attrition biases, an attrition analysis (ANOVA) on fifth-grade measures compared children for whom sixth-grade data were available to those who had been lost from the sixth-grade data collection. As in previous longitudinal studies (Brook, Cohen, & Gordon, 1983), the students for whom data were not available in the sixth grade were found to be less conventional than those who were followed successfully. Among boys, lost subjects reported less attachment to conventional peers ($p<.05$) as well as more suspensions from school ($p<.05$) in the fall of the fifth grade. Among girls, lost subjects were less committed to school ($p<.05$) in the fall of the fifth grade. There were no other significant differences between the two groups at the beginning of fifth grade. Although these findings may limit the external generalizability of the outcomes to low-income youth who do not move, the

internal validity of the study was not compromised since attrition reflected the departure of low-income students from participating schools and is not, with one exception, confounded with intervention. Attrition analyses by condition found no evidence of differential attrition by condition in the male sample and a single instance of differential attrition in the female sample as discussed in the results section.

Measures

Teacher instructional practices. Classroom instructional practices of both intervention and control teachers were assessed annually through use of a structured observational recording system (Kerr, Kent, & Lam, 1985). The observations were then transformed into summary scores as an implementation check of teaching practices in classrooms. As predicted, intervention teachers utilized intervention teaching strategies significantly more than did control teachers in five of the six years of the study. These findings support the use of the treatment classification measure in this study by demonstrating that the project teaching practices varied significantly between intervention and control conditions.

*Construct measures.** The social development model constructs and outcome measures were composed of conceptually grouped items, as listed in the first column of TABLE 1. Reliability for all composite indexes was estimated separately for boys and girls, using Cronbach's alpha. Estimates for almost all the items fell within the .92 to .60 range for both genders. However, they were found to be in the low range for boys on the items of substance abuse refusal skills and bonding to the father (.35 and .30 respectively).

Analysis

Analyses were conducted separately for low-income boys and girls to identify sixth-

grade mean differences on intervening and outcome measures between students in the control and full intervention conditions. Except as noted, mean differences were evaluated using independent group *t*-tests.

Analyses were conducted separately for females and males in light of evidence that involvement in certain problem behavior such as delinquency is greater for males than for females (Elliott et al., 1989; Farrington, 1987). Such analyses allowed investigation of the possibility of different patterns of intervention effects for low-income males and females.

Intervention effects on each of the model constructs hypothesized as affected by the intervention were examined separately for several reasons. First, the intervention was theory-driven and it was thus important to ascertain the effects of the intervention on each potentially affected construct in the model. Second, analyses revealed relatively low correlations between constructs and, even within constructs, across scales that measured each of them in different domains. For example, among low-income boys, the correlation between attachment to school and attachment to the father was .06. The use of multivariate analytic techniques is less appropriate, however, when inter-item correlations are small (Stevens, 1986). Since it is difficult to affect change in children who are experiencing a number of risk factors, each comparison was tested at the .05 level. While this approach increases the experiment-wide alpha level, its ability to detect intervention effects is greater.

RESULTS

At the end of sixth grade, a number of statistically significant differences were found between the high-risk (low-income) intervention and control groups in both female and male samples, as can be seen in TABLE 1.

*A complete description of the Seattle Development Item and Scale Dictionary for the Fifth, Sixth, and Seventh Grades is available from the second author.

Table 1
INTERVENTION AND OUTCOME MEASURES: LOW-INCOME GIRLS AND BOYS

VARIABLE	GIRLS						BOYS					
	INTERVENTION			CONTROL			INTERVENTION			CONTROL		
	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Conventional												
Class	3.44	0.58	27	3.13	0.88	30	3.00	0.83	18	3.03	0.82	32
Peer	3.55	0.74	28	3.33	0.97	30	3.32	0.75	18	3.25	0.91	30
Outside classroom	2.83	1.08	27	2.45	1.33	29	2.80	1.18	15	2.68	1.12	32
Family	3.07	0.81	27	2.88	0.70	30	2.85	0.59	17	2.82	0.60	31
Opportunities												
Outside classroom	3.15	0.99	27	3.37	0.72	30	3.08	0.77	18	3.08	0.98	31
Classroom	3.38**	0.49	27	2.97**	0.82	30	3.21	0.38	17	3.14	0.65	32
Team learning	3.83**	0.56	27	3.10**	0.92	30	3.18*	0.39	17	2.81*	1.01	31
Skills												
Social	1.78	0.38	16*	1.80	0.35	27	1.98**	0.05	10*	1.83**	0.50	31
Schoolwork	1.67	0.50	16*	1.62	0.50	27	1.90**	0.17	10*	1.42**	0.59	31
Cal. Achievement Test	525	0.48	27	518	0.48	29	538**	0.44	17	509**	0.47	32
Grades	0.01	0.71	27	-0.15	0.84	29	-0.09**	0.83	17	-0.61**	0.84	28
Substance abuse refusal	2.31	0.49	28	2.17	0.43	29	2.32	0.43	17	2.17	0.33	32
Family management	3.54	0.45	27	3.52	0.54	30	3.41	0.44	17	3.35	0.55	31
Rewards												
Classroom participation	2.98**	0.62	27	2.58**	0.75	30	3.01*	0.43	17	2.68*	0.65	32
Peer reinforcement	2.81	0.92	27	2.72	0.98	29	2.89	0.70	18	2.81	0.83	31
Positive feedback from parents	3.52	0.58	27	3.43	0.63	30	3.35	0.70	17	3.18	0.97	31
Bonding												
Attachment to school	3.19**	0.78	27	2.69**	0.93	30	3.10*	0.48	17	2.72*	0.81	32
Commitment to school	0.59**	0.70	27	0.15**	0.78	30	0.18**	0.67	17	-0.29**	0.88	32
Bonding to mother	3.00	0.81	27	2.75	0.91	28	2.79	0.81	17	2.55	0.93	32
Bonding to father	2.61	0.92	22	2.50	0.84	20	2.44	0.73	16	2.60	0.84	30
Belief in moral order	3.51	0.58	27	3.40	0.58	29	3.38	0.55	17	3.58	0.43	31
Attachment to friends	2.65	0.83	27	2.82	0.83	28	2.59	0.81	17	2.33	0.97	30
Antisocial												
Peers, student report	0.72	1.07	25	0.89	1.23	28	1.13	1.40	15	0.92	1.21	28
Peers, teacher report	0.31	0.70	16*	0.22	0.51	27	0.20**	0.63	10*	0.55**	0.77	31
Opportunities												
To get marijuana	-0.28**	0.70	27	0.14**	0.72	29	-0.20	0.80	18	-0.10	0.70	31
Neighborhood	2.65	1.16	26	2.69	1.11	29	2.47	1.01	17	2.45	1.08	31
Antisocial rewards	1.29	0.42	27	1.49	0.58	29	1.47	0.43	17	1.48	0.57	31
Substance Use Norms												
Perceived risk	3.44	0.74	27	3.38	0.84	30	3.32	0.92	17	3.53	0.72	32
Acceptability (peer group)	3.91	0.20	28	3.80	0.42	30	3.94	0.24	17	3.88	0.30	32
Expected adult alcohol use	3.48	0.70	27	3.57	0.68	30	3.59	0.62	17	3.62	0.66	32
Drug Use												
Alcohol	0.19*	0.40	27	0.39*	0.50	28	0.24	0.44	17	0.23	0.43	31
Cigarettes	0.07**	0.27	27	0.38**	0.49	28	0.06	0.24	17	0.11	0.31	28
Marijuana	0.04*	0.19	27	0.17*	0.38	29	0.06	0.24	17	0.06	0.25	32
Delinquency												
Initiation	0.56	0.51	27	0.57	0.50	30	0.41*	0.51	17	0.87*	0.48	30
Runaway	0.04	0.19	27	0.03	0.18	30	0.06	0.24	17	0.13	0.35	30

Note. Conventional=Conventional involvement and interaction. Antisocial=Antisocial involvement and interaction.

*Drop in *N* is due to fewer T-CBC completions by intervention teachers (additional analyses showed no systematic bias between intervention students with and without T-CBC scores).

p* ≤ .10 (two-tailed); *p* ≤ .05 (two-tailed).

Conventional Involvement and Interaction

No significant differences in conventional involvement and interaction were found between the intervention and control groups for low-income boys or girls.

Opportunities. As hypothesized, girls in the high-risk intervention group reported

significantly greater classroom use of cooperative team learning methods than did their counterparts in the control group, $t(55)=2.53$, $p<.05$. High-risk intervention-group boys reported slightly more classroom use of cooperative methods, $t(46)=1.80$, $p<.10$, than did control-group boys.

This indicates (here from the student's perspective) that teachers in intervention classrooms were more likely than their control counterparts to use the teaching techniques prescribed for increasing opportunities for prosocial classroom interaction.

In addition, girls in the high-risk intervention group reported significantly more opportunities for classroom involvement, $t(55)=2.34$, $p<.05$, than did girls in the high-risk control group. Boys' perceptions of such classroom opportunities, on the other hand, did not differ between the intervention and control groups at the end of sixth grade.

Skills. No significant differences in conventional involvement and interaction skills were found between the intervention and control conditions for high-risk girls. However, teachers rated high-risk intervention-group boys as significantly more socially competent, $t(39)=4.18$, $p<.05$, than high-risk boys in control classrooms. Boys' study skills and persistence in working on schoolwork were also rated by teachers as significantly better in the intervention group than in the control group $t(39)=4.02$, $p<.05$. Further, significantly higher grades were reported for high-risk boys in intervention classrooms than for those in the control group, $t(43)=2.02$, $p<.05$. Perhaps most important, high-risk intervention-group boys scored significantly higher on the combined math, reading, and language arts standardized batteries from the California Achievement Test ($t(47)=2.32$, $p<.05$) than did their counterparts in the control group.

Rewards. As predicted, girls in the intervention condition reported significantly more reinforcement for classroom participation than did their control counterparts, $t(55)=2.03$, $p<.05$. Intervention-group boys also reported more reinforcement for classroom involvement, $t(47)=1.85$, $p<.10$, than did control-group boys, although the difference only approached significance.

Bonding. As hypothesized, high-risk girls

in the intervention condition were significantly more attached, $t(55)=2.28$, $p<.05$, and more committed $t=2.13$, $p<.05$, to school than were their control counterparts. High-risk boys in the intervention condition were somewhat more attached to school, $t(47)=1.73$, $p<.10$, and significantly more committed, $t(47)=2.01$, $p<.05$, than were their control counterparts.

Antisocial Involvement and Interaction

No significant differences were found in the degree of antisocial interaction reported by high-risk intervention and control girls. In contrast, as predicted, teacher reports of child interactions with antisocial peers were significantly lower for high-risk boys in the intervention group, $t(39)=2.75$, $p<.05$, than for those in the control group.

Opportunity and rewards. Low-income intervention girls reported significantly fewer opportunities to obtain marijuana, $t(54)=2.17$, $p<.05$; however, this difference is probably due to differential attrition effects, $F=3.18$, $p<.05$, inasmuch as girls leaving the intervention group reported more opportunities for antisocial involvement than did those who remained, whereas girls leaving the control condition reported fewer opportunities for antisocial involvement than did the remaining control girls. No significant differences were found in boys' perceptions of opportunities or rewards available for antisocial involvement and interaction.

Substance use. No significant differences were found on variables pertaining to norms on substance abuse between the intervention condition and the control condition for either high-risk girls or boys.

As hypothesized, high-risk control girls were significantly more likely to have smoked cigarettes, $t(53)=2.51$, $p<.05$, and somewhat more likely to have tried alcohol, $t(53)=1.70$, $p<.10$, and marijuana, $t(54)=1.68$, $p<.10$, than were their counterparts in the intervention group.

In contrast, no significant differences in drug use initiation were found between

high-risk boys in the intervention and control groups.

Delinquency. No significant differences on delinquency measures were found between girls in high-risk intervention and control groups. However, as predicted, boys in the control group were somewhat more likely to report prior delinquency initiation, $t(45)=1.89, p<.10$, than were those in the intervention group, although the difference only approached significance.

DISCUSSION

The longitudinal intervention described in this article sought to change the opportunity, skill, and reinforcement structures of mainstream elementary-school classrooms and of their students' families in order to achieve positive effects on low-income students at risk for academic failure, delinquency, and substance use.

An advantage of the current research over previously reported studies is that it explored the cumulative effects of six years of intervention. It also intervened with teachers, students, and parents in both school and home environments. Few controlled studies have reported the effects of simultaneous intervention in school and family contexts as a preventive intervention for academic failure, delinquency, and drug abuse. In fact, few studies have sought to prevent such problems by addressing precursors or risk factors common to these types of behavior.

The results, nevertheless, were somewhat mixed. Girls from low-income families in the intervention perceived more opportunities and reinforcements for involvement in the classroom, expressed stronger bonding to school in both the attachment and commitment dimensions, and were significantly less likely to initiate the use of tobacco than were girls in the control group. Low-income girls in the intervention group were also less likely than those in the control group to have initiated alcohol or marijuana use, although these differences only approached significance.

These findings for low-income girls are consistent with several hypotheses of the social development model. Perceptions of greater opportunities and reinforcements for school involvement have been theorized to create greater bonding to school. This bonding should, in turn, serve as an internal control against behavior perceived as deviant, such as substance use initiation.

Among low-income boys, the pattern of findings suggests that the intervention affected both social competencies and academic skills and efforts. The latter appear to have yielded higher scores at the end of sixth grade on standardized achievement tests in math, reading, and language arts for low-income boys in the intervention condition. Intervention-group boys also perceived slightly, though not significantly, greater reinforcements for classroom involvement than did their control-group counterparts and exhibited more attachment and significantly greater commitment to school. They tended to initiate delinquency at significantly lower rates than was the case with their control-group counterparts, but their rates of drug use initiation were not significantly lower.

The positive outcomes hypothesized in the social development model include reduction of academic failure, substance abuse, and delinquency among low-income children through modification of classroom teaching practices and parent training. However, it is important to note that some of these constructs were not significantly influenced by the present intervention. Family bonding, management practices, and involvement showed no significant differences in either the male or the female sample between intervention and control groups. The lack of findings in the family domain may, in part, be attributed to low attendance for parenting classes. Despite several strategies (Hawkins, et al., 1987) for parent recruitment (including personal invitations from teachers to those considered most in need of training, free child care and transportation, and periodic lotteries), few

of the eligible low-income caretakers attended. More effective methods of engaging low-income caretakers in parenting classes need to be developed in future replications so that effects of family variables may be more fully explored.

The pattern of results suggests possible differences in the processes through which the interventions affect girls and boys. Low-income girls exposed to the intervention perceived changes in teaching practices as well as increased opportunities for classroom involvement. Low-income boys did not perceive differences in classroom opportunities. Rather, their social and academically focused skills as rated by teachers were affected. These findings may reflect social or developmental differences in the perception and behavior of boys and girls in late childhood. In spite of these differences, the interventions, as hypothesized, affected girls' (and, to some extent, boys') perceptions of rewards in the classroom and this, in turn, affected their attachment or commitment (bonding) to school. Few investigations of the effects of preventive interventions have looked separately at females and males or investigated the interaction of intervention and gender. The present results suggest that such analyses may be important both to elucidate theory and to inform practice.

The intervention resulted in significantly lower levels of tobacco use and in tendencies toward less alcohol and marijuana use by low-income girls. This occurred even though the project did not produce significant effects on norms for the use of these substances across conditions for low-income girls or boys. It is likely that the observed effects on drug use initiation resulted from increased bonding to school, as hypothesized by the social development model. For girls, school measures of attachment and commitment (bonding) were both significantly negatively correlated with drinking, smoking, and marijuana initiation.

The interventions also tended to lower the initiation into delinquency of low-in-

come boys, as shown by significant negative correlations between bonding-to-school measures and delinquency initiation. These results, combined with the findings of enhanced success and bonding to school, suggest that the intervention was effective in changing attitudes, skills, and behavior among boys. The absence of similar findings regarding drug use initiation (no significant reductions in early drug initiation were observed among low-income boys) is not consistent with these changes. However, it is possible that, as these boys mature, less frequent substance use will follow these earlier positive effects on their school and delinquent behavior.

The findings of this study are preliminary and suggestive. Clearly, attrition, the absence of baseline data and multiple comparisons, and the small numbers of low-income students available for outcome analysis all suggest caution in interpreting or generalizing the results. However, the findings provide limited support for such recent federal education policy as the 1988 Hawkins-Stafford Amendments to the Elementary and Secondary Education Act, which allocates funding for teacher training and innovations, in-classroom programs for schools with high proportions of low-income students, and parental involvement and training. The results suggest the potential of comprehensive school-based, risk-reduction strategies in affecting children from low-income families. Interventions in mainstream school classrooms may well benefit children exposed by poverty to greater risk for school failure, crime, and drug use.

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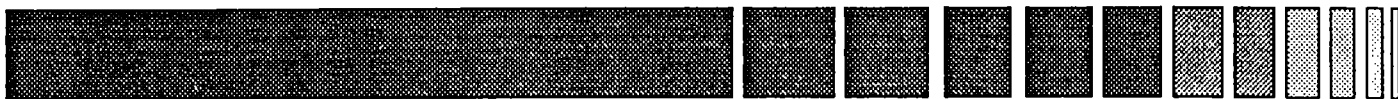
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J. DAVID HAWKINS

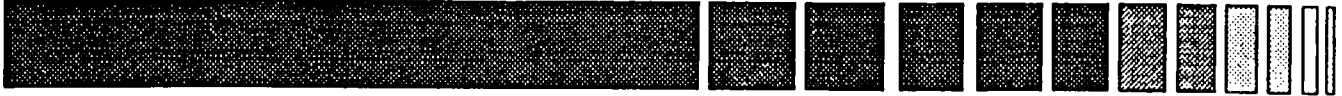
Dr. J. David Hawkins is Professor of Social Work, and Director of the Social Development Research Group, University of Washington, Seattle. He received his B.A. from Stanford University and his Ph.D. in Sociology from Northwestern University. His research focuses on understanding and preventing child and adolescent health and behavior problems. He seeks to identify risk and protective factors for health and behavior problems across multiple domains; to understand these factors interact in the development or prevention of problem behaviors; and to test comprehensive prevention strategies which seek to reduce risk through the enhancement of protective factors in families, schools, peer groups and communities. Since 1981, he has been conducting the Seattle Social Development Project, a longitudinal prevention study based on his theoretical work. He is co-developer of the Social Development Model, a theory which provides a foundation for positive development and delinquency and drug abuse prevention and co-author of "Preparing the Drug (Free) Years," a prevention program which empowers parents to strengthen family bonding and reduce the risks for drug abuse in their families. He is also co-author of Communities That Care: Action for Drug Abuse Prevention, co-editor of A Sourcebook on Serious, Violent, & Chronic Juvenile Offenders, and editor of Delinquency and Crime: Current Theories. He has served as a member of the National Institute of Drug Abuse's Epidemiology, Prevention and Services Research Review Committee, and the Office for Substance Abuse Prevention's National Advisory Committee. He currently serves on the National Education Goals Panel Resource Group on Safe and Drug Free Schools, and was a member of the Committee on Prevention of Mental Disorders of the Institute of Medicine at the National Academy of Sciences. He was awarded the NPN Seventh Annual Award of Excellence for Outstanding Contribution to the Field of Prevention, and was also named the University of Washington Lecturer for the 1996-1997 academic year. He is committed to translating research into effective practice and policy to improve adolescent health and development.



Effective Interventions

Presented by
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University of Washington
for the
Mott Children's Health Center
24th Annual Tuuri Day Conference
October 16, 1996

Reducing Risks for *Mental Disorders*



Frontiers for Prevention Intervention Research

Patricia J. Mrazek and Robert J. Haggerty
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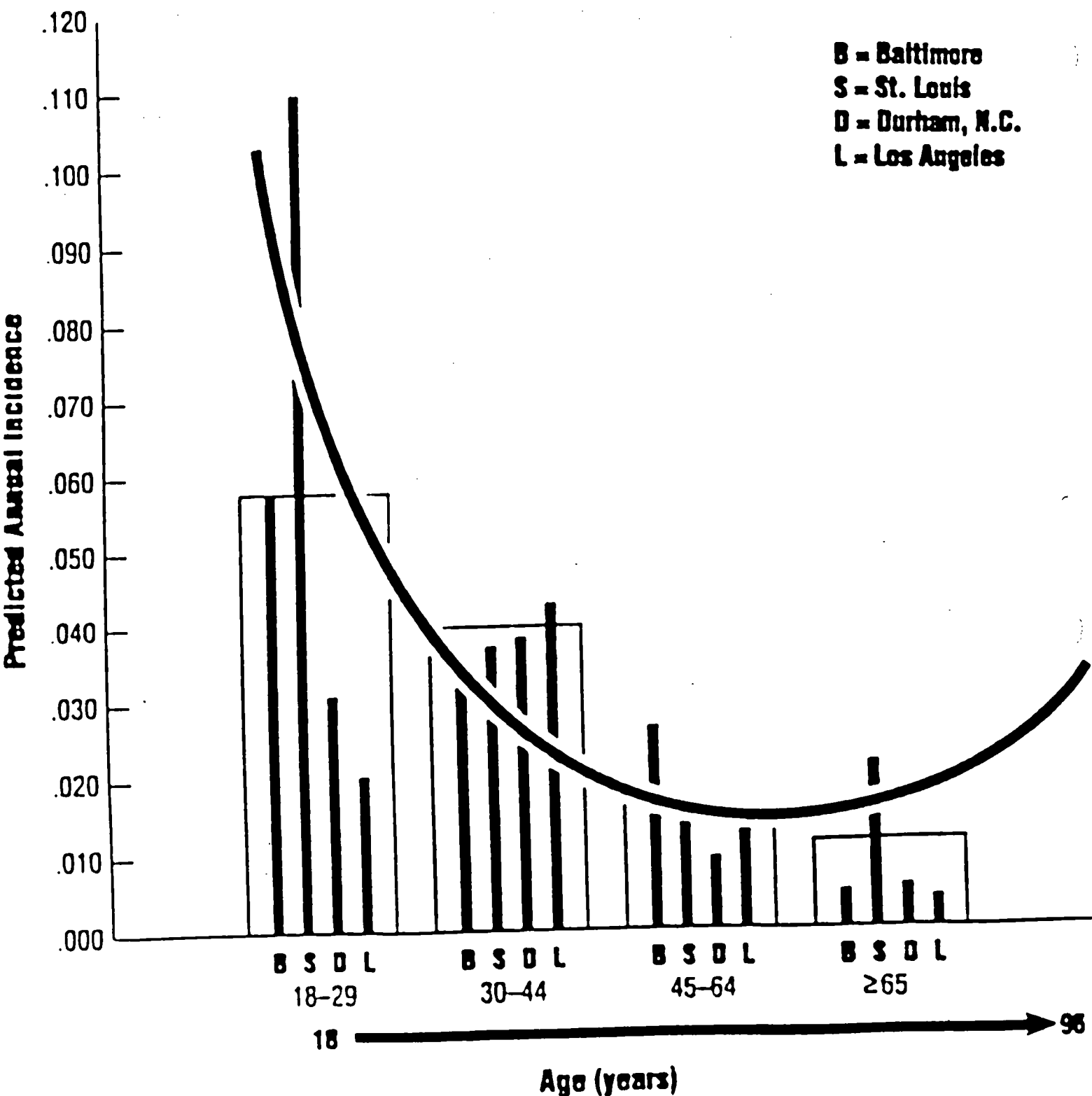


FIGURE 5.1 Annual incidence of DIS/DSM-III Alcohol Abuse/Dependence.

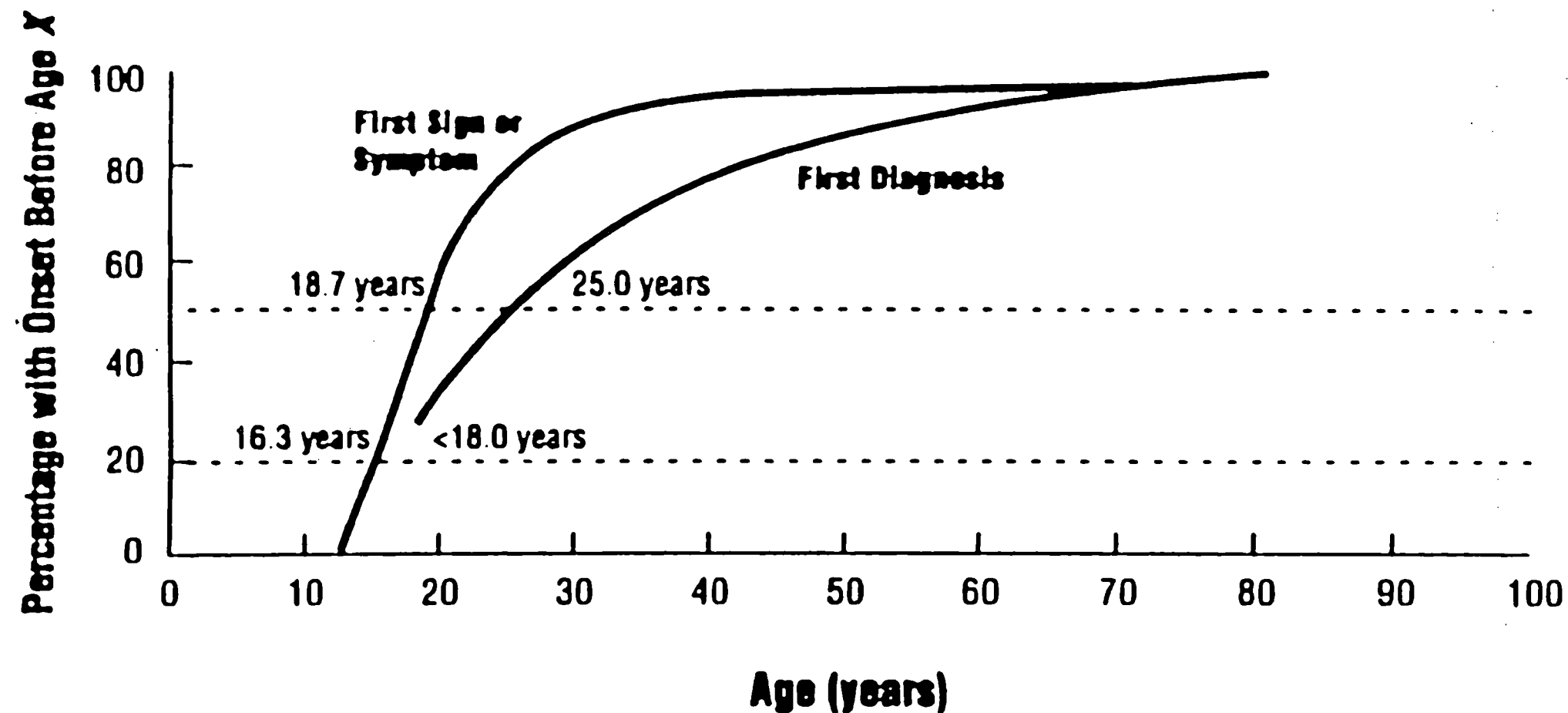


FIGURE 5.2 Age of onset of DIS/DSM-III Alcohol Abuse and Dependence. Population estimates are from 125 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

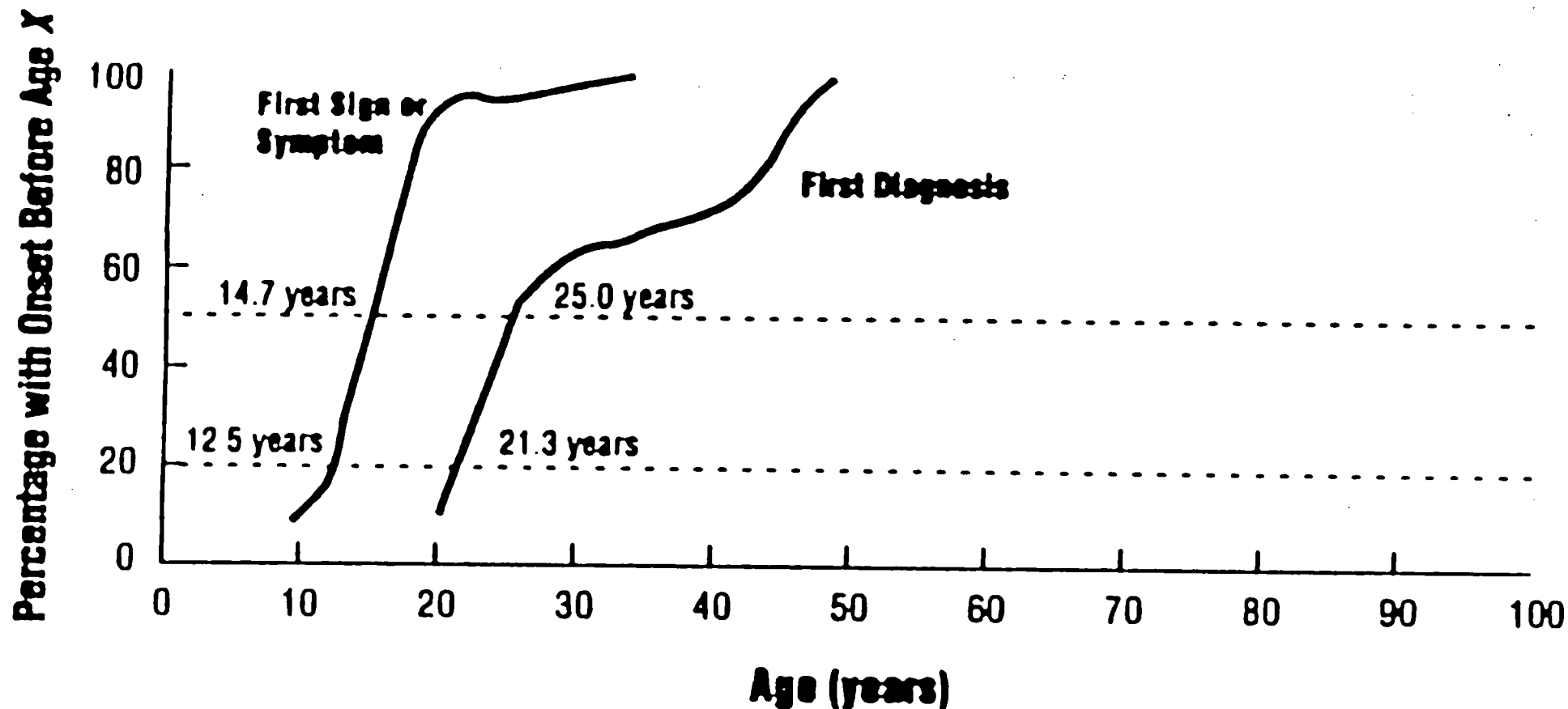


FIGURE 5.3 Age of onset of DIS/DSM-III Antisocial Personality Disorder. Population estimates are from 46 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

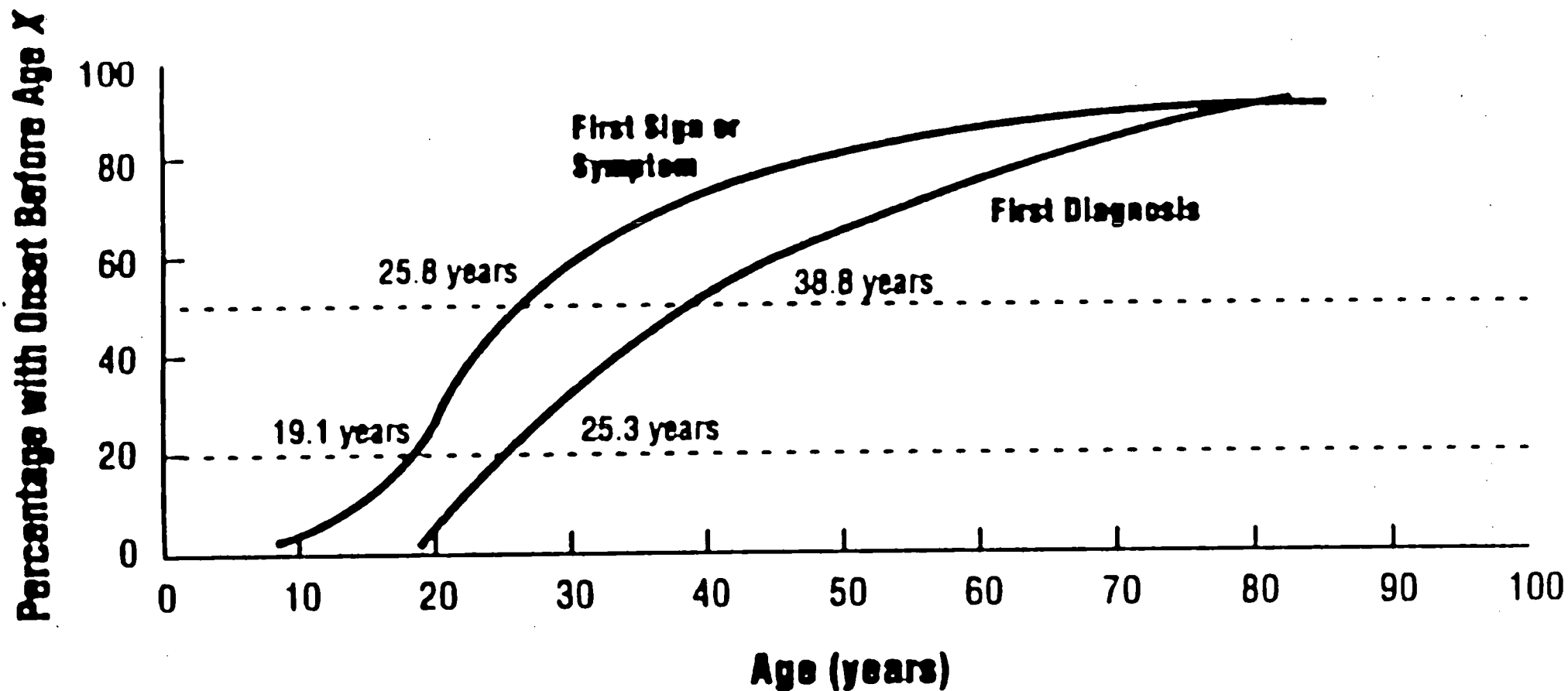


FIGURE 5.4 Age of onset of DIS/DSM-III Major Depressive Disorder. Population estimates are from 148 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

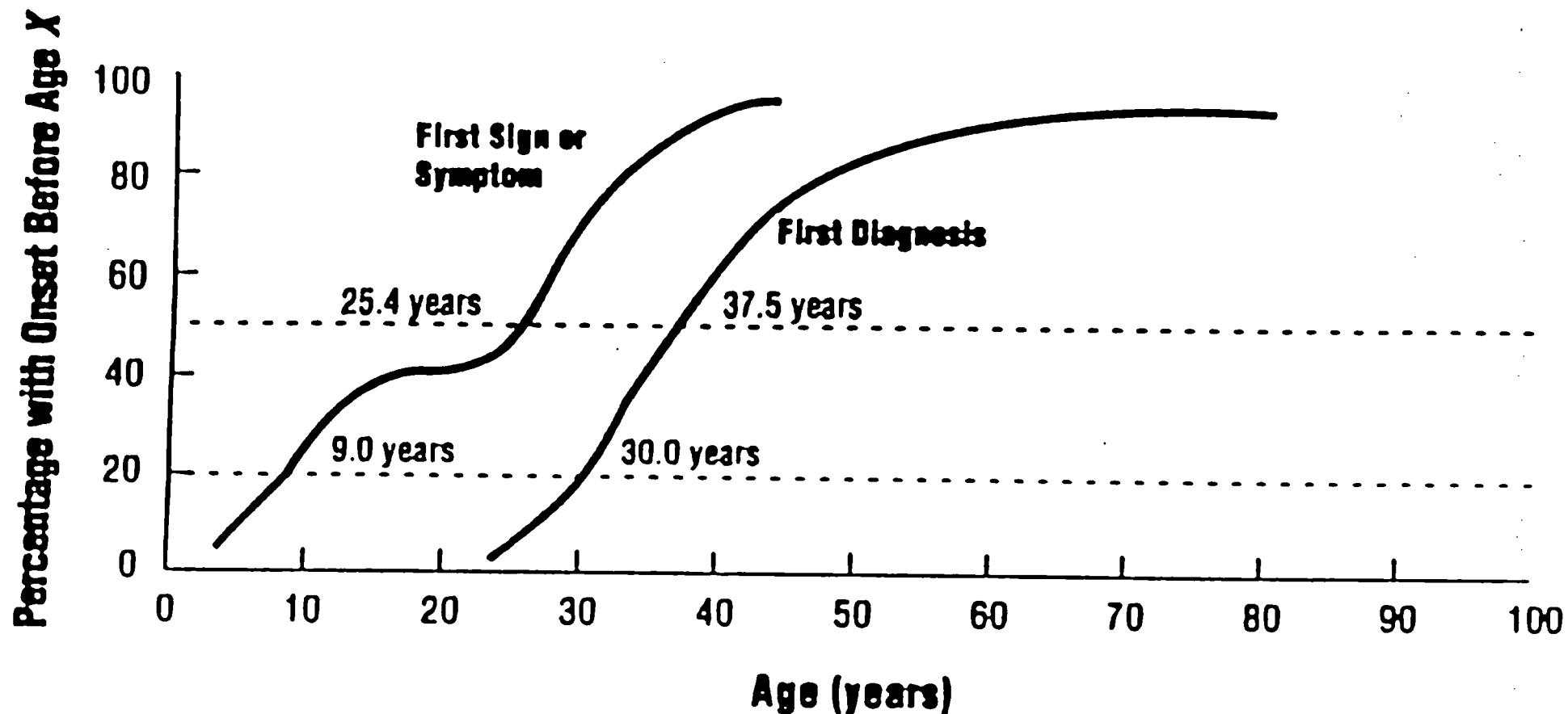


FIGURE 5.5 Age of onset of DIS/DSM-III Schizophrenia. Population estimates are from 35 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

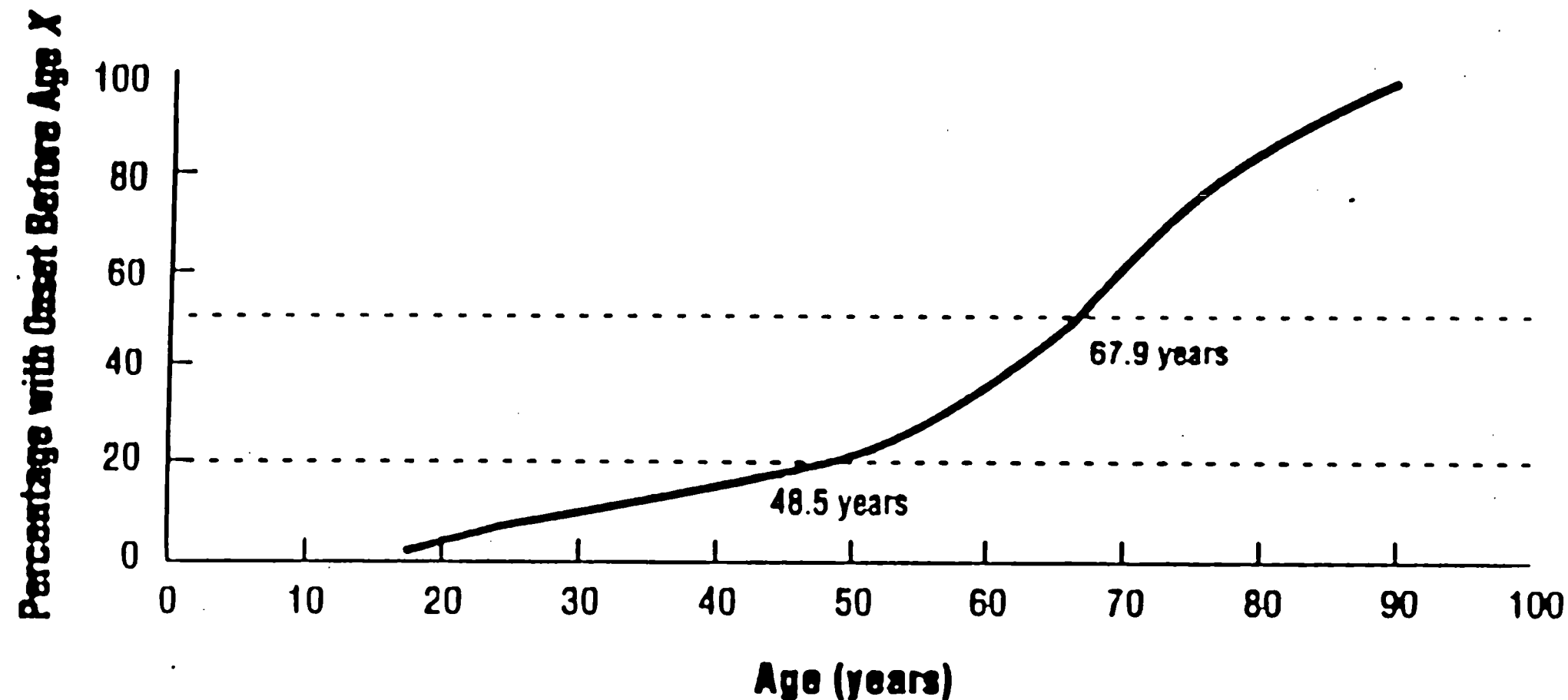


FIGURE 5.6 Age of onset of DIS/DSM-III Cognitive Impairment. Population estimates are from 187 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

TABLE 7.1 Illustrative Preventive Intervention Programs Using Randomized Controlled Trial Design

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
<i>Infants</i>				
Prenatal/Early Infancy Project	Selective/ N=394	Economic deprivation, maternal prenatal health and damaging behaviors, poor family management practices	Improved maternal diet and reduced smoking during pregnancy, fewer preterm deliveries, higher-birthweight babies, less child abuse	Olds, 1988, 1986
Tactile/Kinesthetic Stimulation	Selective/ N=40	Preterm delivery, low birthweight	Better physical and mental development of infants	Field, 1986
Early Intervention for Preterm Infants	Selective/ N=60	Teenage parenthood, low socioeconomic status, preterm delivery	Better parenting behaviors and attitudes of mothers, better cognitive competence, better physical development, better temperament of infants	Field, 1980
Infant Health and Development Program	Selective/ N=985	Low birthweight, poor family management practices, academic failure, early behavior problems	Better cognitive competence, fewer behavior problems	Ramey, 1990
Carolina Abecedarian Project	Selective/ N=107	Academic failure, lack of readiness for school, economic deprivation, low commitment to school	Better cognitive competence, lower rates of retention in grade in school	Horacek and Ramey, 1987
<i>Young Children</i>				
Houston Parent-Child Development Center	Selective/ N=700	Economic deprivation, academic failure, early behavior problems, poor family management practices	Better family management practices, fewer behavior problems	Johnson, 1991, 1990
Mother-Child Home Program of Verbal Interaction Project	Selective/ N=156	Academic failure, economic deprivation, poor family management practices, early behavior problems	Better family management practices, better cognitive competence	Levenstein, 1992, 1984
Parent-Child Interaction Training	Indicated/ N=105	Economic deprivation, early behavior problems, poor family management practices, maternal depressive symptoms	Lower rates of attention deficits and conduct problems	Strayhorn, 1991
High/Scope Preschool Curriculum Comparison Study (including Distar)	Selective/ N=68	Academic failure, early behavior problems, economic deprivation	Better cognitive competence	Weikart and Schweinhart, 1992, 1986
Perry Preschool Program (using High/Scope curriculum)	Selective/ N=123	Academic failure, economic deprivation, early behavior problems, low commitment to school	Better cognitive competence, greater achievement and school completion, better vocational outcomes, fewer conduct problems and arrests	Weikart and Schweinhart, 1987, 1984
I Can Problem Solve: Interpersonal Cognitive Problem-Solving Program	Selective/ N=219 (N=60 in pilot study)	Economic deprivation, poor impulse control, early behavior problems	Better cognitive problem-solving skills, fewer behavior problems	Shure and Sprick, 1982, 1979
<i>Elementary-Age Children</i>				
Assertiveness Training Program (program I)	Universal/ N=343	Early behavior problems, academic failure	Improved social assertiveness, improved academic performance	Rotheram, 1982

(continued)

TABLE 7.1 (Continued)

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
Assertiveness Training Program (program 2)	Indicated/ N=101	Early behavior problems, academic failure	More assertive behavior, better school achievement, fewer behavior problems	Rotheram, 1982
Children of Divorce Intervention Program	Selective/ N=75	Marital conflict and separation, early conduct problems	Lower anxiety, fewer learning problems, better adjustment	Pedro-Carroll and Cowen, 1989, 1986, 1985
Family Bereavement Program	Selective/ N=72	Child bereavement, poor family management practices, early behavior problems	Lower levels of symptoms of depression and conduct disorder	Sandler, 1992
Social Skills Training	Selective/ N=28	Peer rejection, early conduct problems	Less peer rejection, better interpersonal skills	Bierman, 1986
Social Relations Intervention Program	Indicated/ N=86	Early behavior problems (aggression), peer rejection, impulsivity	Less aggression, less peer rejection, more prosocial behavior	Lochman, in press
Montreal Longitudinal- Experimental Study	Indicated/ N=172	Poor family management practices, peer rejection, academic failure, early behavior problems, violence on television	Less aggressive behavior, less delinquent behavior, better school achievement	Tremblay, 1992, 1991
Community Epidemiological Preventive Intervention: Mastery Learning and Good Behavior Game	Universal/ N=2314	Academic failure, aggressive and antisocial behavior, concentration problems, depressive symptoms, shy behavior	Less aggressive and shy behavior, better cognitive competence—especially among those with early depressive symptoms	Kellam and Rebeck, 1992
Academic Tutoring and Social Skills Training	Selective/ N=40	Academic failure, peer rejection, early behavior problems, early depressive symptoms	Better cognitive competence, less peer rejection	Coie and Krehbiel, 1984
Seattle Social Development Project	Universal/ N=908	Poor family management practices, early behavior problems, low commitment to school, academic failure	Better family management practices and family bonding, greater attachment to school, lower rates of delinquency and drug use initiation	Hawkins and Catalano, 1988
<i>Adolescents</i>				
Changing Teaching Practices	Selective/ N=1166	Low commitment to education, academic failure, behavior problems	Greater attachment and commitment to school, lower rates of school suspension for misbehavior	Hawkins, 1988
Positive Youth Development Program	Universal/ N=282	Early drug use onset, favorable attitudes toward drugs, social influences to use	Better coping skills, better stress management strategies, better conflict resolution and impulse control, less excessive alcohol use	Caplan and Weissberg, 1992
Adolescent Alcohol Prevention Trial	Universal/ N=3011	Attitudes favorable to the use of drugs, social influences to use, early onset of drug use	Lower rates of tobacco, alcohol, and marijuana use, lower prevalence of problem alcohol use and drunkenness	Hansen and Graham, 1991
ALERT Drug Prevention	Universal/ N=6527	Social influences to use, early onset of drug use, attitudes favorable to the use of drugs	Lower rates of tobacco, alcohol, and marijuana use	Ellickson and Bell, 1990
Alcohol Education Project	Universal/ N=2536	Favorable attitudes toward alcohol consumption, early onset of alcohol use, association with alcohol-consuming friends, community norms favorable toward alcohol use	Less initiation of alcohol use, increased knowledge about alcohol, decreased use among those drinking prior to study	Perry et al., 1989

(continued)

TABLE 7.1 (Continued)

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
Midwestern Prevention Project	Universal/ N=5065	Social influences to use, early onset of drug use, attitudes favorable to the use of drugs	Lower rates of tobacco, alcohol, and marijuana use	Pentz, 1989
Behaviorally Based Preventive Intervention	Indicated/ N=80	Academic failure, early behavior problems, alienation from family, low commitment to school	Less conduct problems and delinquency	Bry, 1992
Intervention Campaign Against Bully-Victim Problems	Universal/ N=2400	Aggressive behavior, poor family management practices, favorable attitudes toward bullying/aggression	Less bullying, less delinquent behavior, more attachment to school	Olweus, 1991
<i>Adults</i>				
Prevention and Relationship Enhancement Program (PREP)-An Empirically Based Preventive Intervention Program for Couples	Universal/ N=135	Couple relationship problems	Better marital adjustment, less divorce, less physical violence	Markman, 1992
University of Colorado Separation and Divorce Program	Selective/ N=153	Marital separation/divorce, anxiety, depression, childrearing problems, economic problems	Fewer symptoms of anxiety and depression, better vocational outcomes	Bloom and Hodges, 1985, 1982
Perceived Personal Control Preventive Intervention for a Cesarean Birth Population	Selective/ N=70	Caesarean delivery, depressive symptoms	Lower levels of postpartum depression, more rapid physical and psychological recovery	Tadmor and Brandes, 1988, 1984
Prenatal/Early Infancy Project	Selective/ N=394	Single parent status, school dropout, economic hardships, joblessness, subsequent pregnancy	Better vocational adjustment, fewer second pregnancies, better educational achievement	Olds, 1988
Caregiver Support Program for Coping with Occupational Stress	Selective/ N=247	Occupational stress, distress, anxiety, depression	Lower psychological distress, better job satisfaction	Heaney, 1992
JOBS Project for the Unemployed: Michigan Prevention Research Center	Selective/ N=928	Involuntary job loss, anxiety, depression, alcohol abuse, marital stress	Fewer depressive symptoms, higher pay, cost-effective outcomes	Vinokur, Price, Caplan, and van Ryn, 1992, 1991
San Francisco Depression Prevention Research Project: A Randomized Trial with Medical Outpatients	Selective/ N=150	Depressive symptoms, medical problems, low income, minority status in public primary care setting	Lower levels of depressive symptoms	Muñoz, 1993, 1990, 1987
Projecto Bienestar: An Intervention for Preventing Depression in Hispanic Immigrant Women in the Community	Selective/ N=399	Low income, immigrant minority status, distress, depressive symptoms	Fewer depressive symptoms	Vega, 1990, 1987
Peer- and Professionally-Led Groups to Support Family Caregivers	Selective/ N=56	Caregiver burden, anxiety, depression	Lower levels of psychiatric symptoms, including anxiety and depression, better coping skills	Toseland, 1990, 1989
<i>Elderly</i>				
Widow-to-Widow: A Mutual Help Program for the Widowed	Selective/ N=162	Widowhood, bereavement, depression, anxiety, social isolation	Fewer depressive symptoms, less social withdrawal	Vachon, 1982, 1980, 1979

Communities That Care: An Overview

For more information contact Developmental Research and Programs, Inc.
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There are three major phases of mobilizing a community to ensure the health and safety of its young people and institutionalize prevention.

Phase One—Introduce and Involve

- **Define the community**—What are the geographic boundaries and who are the people who live in your community? The answers to these questions are the first step in educating and involving your community. Your community may be defined as a neighborhood or a school catchment area.
- **Involve key leaders**—These are the influential individuals in your community's neighborhoods, schools, government, law enforcement, social services, juvenile justice system, medical and mental health, child and family services, religious organizations and cultural groups, and businesses. Their involvement is essential in providing credibility, accessing resources, removing barriers and supporting community prevention. Some of the key leaders may serve on the community prevention board or team. Others will appoint staff people to represent them.
- **Create a community-wide positive youth development board**—This group will be made up of concerned community members representing all the signifi-

cant areas affecting young people's lives: parents, educators, government officials, neighborhood residents, law enforcement officers, religious leaders, juvenile justice personnel, social service providers, health and mental health care providers, cultural leaders, business people, and young people themselves. A diverse group that is reflective of your community is critical to your success. This will be the working group for implementing positive developments to preventing health and safety problems of young people in your community.

- **Assess community readiness**—Is your community ready to use the existing research evidence to promote healthy development and prevention of problem behaviors? Are there groups who deny the existence of adolescent problem behaviors? Have they had any experience working collaboratively with other agencies and organizations? These obstacles must be identified and overcome before you proceed with your prevention efforts.

Introducing risk and protective factor-focused prevention means educating the community about 1) what research has shown puts young people at risk for adolescent health and behavior problems including delinquency and violence, 2) the protective factors and protective processes that research has shown buffers the effects

of risk exposure, promote resilience in children, and prevent health and behavior problems, and 3) tested strategies that reduce risk and enhance the protective factors of bonding and clear standards for behavior. The process of building community support is as important to your success as the programs you implement. Establishing broad-based community support weaves prevention into the very fabric of the community.

Phase Two—Conduct Community Assessments and Identify Gaps

- **Conduct community assessments**—In this phase you will be collecting archival and survey data on specific risk factors in your community, using the *Communities That Care* Data Workbook and other community resources. The data you collect will be analyzed and compared to state, county or national trends.

You will assess protective factors through the use of the *Communities That Care* Youth Survey. You will also assess existing community activities, programs, and services in order to identify resources that are already addressing risks and increasing protection for young people.

- **Identify community priorities and gaps to be addressed**—To build an effective strategy, you need both an accurate picture of your community's specific risk profile and information on resources and assets

already in place. Collecting data can help reduce turf battles by demonstrating which risks are a priority to address. It will also provide baseline data to help you evaluate the effects of your efforts.

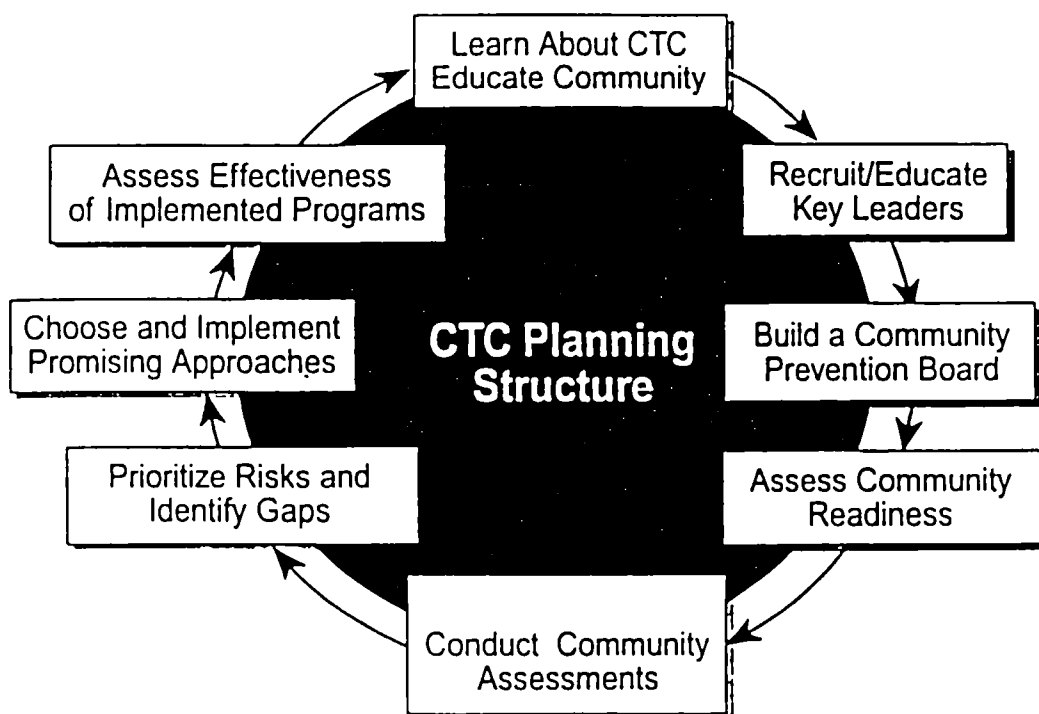
Phase Three—Plan and Implement Promising Responses

- **Learn about research-based strategies that address risk factors and increase protection**—A number of effective strategies involving families, schools, communities and individual/peers have been identified through will controlled research studies.
- **Develop a plan to address priority risks and existing gaps with promising approaches**—The next step is to develop and implement a plan of action to respond to the risks you prioritized as being critical for your community to address, and the gaps in effective resources that you found as a result of your community assessment.
- **Implement the strategy**—Subcommittees or task forces should be formed to oversee each approach you decide to implement. Task forces will continue to work with the entire board, as well as the key leaders, as new efforts are implemented.
- **Evaluate the effectiveness of the strategy**—To assure ongoing success, you will continue to collect information about risk and protective factors, resources and the effectiveness of the

prevention strategies you implement.

Institutionalizing prevention is a long-term process for communities. Evaluation and the resulting strategy enhancements and developments will continue indefinitely. Remember that you are not alone in this process. Many other members of your community are concerned about the healthy development of young people.

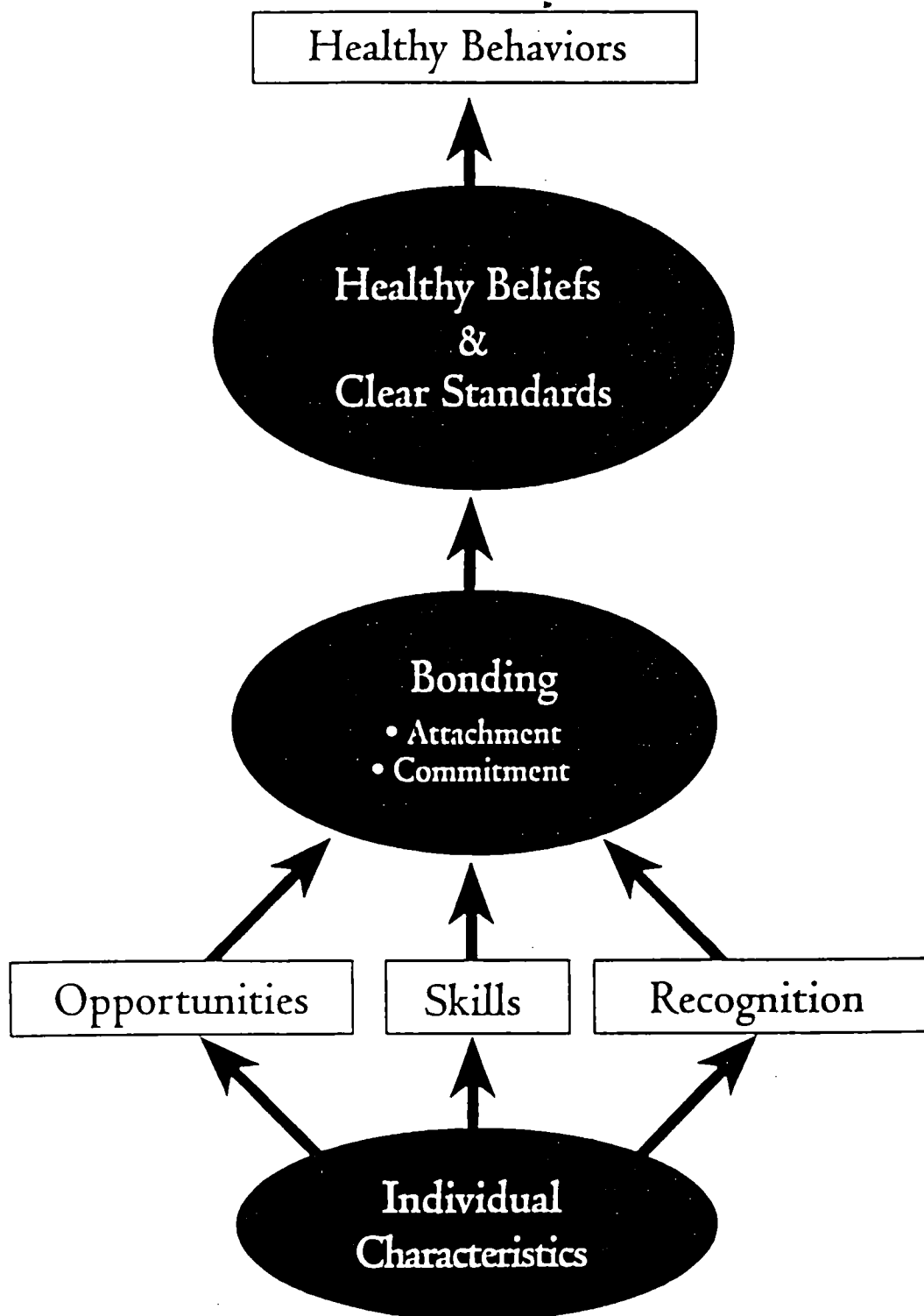
Your task is to harness the energy and commitment of all those who care about young people and channel that commitment into a risk and protective factor-focused prevention approach. By doing so, you can move toward achieving the vision of your community as a healthy, nurturing, safe place for all children to live.



Adolescent Problem Behaviors

Risk Factors	Substance Abuse	Delinquency	Teen Pregnancy	School Drop-Out	Violence
Community					
Availability of Drugs	✓				
Availability of Firearms		✓			✓
Community Laws and Norms Favorable Toward Drug Use, Firearms, and Crime	✓	✓			✓
Media Portrayals of Violence					✓
Transitions and Mobility	✓	✓		✓	
Low Neighborhood Attachment and Community Disorganization	✓	✓			✓
Extreme Economic Deprivation	✓	✓	✓	✓	✓
Family					
Family History of the Problem Behavior	✓	✓	✓	✓	
Family Management Problems	✓	✓	✓	✓	✓
Family Conflict	✓	✓	✓	✓	✓
Favorable Parental Attitudes and Involvement in the Problem Behavior	✓	✓			✓
School					
Early and Persistent Antisocial Behavior	✓	✓	✓	✓	✓
Academic Failure Beginning in Late Elementary School	✓	✓	✓	✓	✓
Lack of Commitment to School	✓	✓	✓	✓	
Individual/Peer					
Alienation and Rebelliousness	✓	✓		✓	
Friends Who Engage in the Problem Behavior	✓	✓	✓	✓	✓
Favorable Attitudes Toward the Problem Behavior	✓	✓	✓	✓	
Early Initiation of the Problem Behavior	✓	✓	✓	✓	✓
Constitutional Factors	✓	✓			✓

The Social Development Strategy



Community Risk and Protective Factors Addressed by Promising Approaches

			Protective Factors					
	Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	Developmental Period
Community Domain	Availability of Drugs	Community/School Policies	✓	✓	✓	✓	✓	all
	Availability of Firearms	Community/School Policies	✓					all
	Community Laws and Norms Favorable Toward Drug Use, Firearms, and Crime	Classroom Curricula for Social Competence	✓		✓	✓		6-14
		Community Mobilization	✓	✓	✓	✓	✓	all
		Community/School Policies	✓	✓	✓	✓	✓	all
		Policing Strategies	✓					all
	Media Portrayals of Violence							
	Transitions and Mobility	Organizational Change in Schools	✓	✓	✓	✓	✓	6-18
	Low Neighborhood Attachment and Community Disorganization	Community Mobilization	✓	✓	✓	✓	✓	all
		Policing Strategies	✓					all
		Organizational Change in Schools	✓	✓	✓	✓	✓	all
		Classroom Curricula for Social Competence	✓		✓	✓		11-14
	Extreme Economic Deprivation	Prenatal and Infancy Programs	✓	✓	✓	✓	✓	prenatal-3
		Youth Employment with Education	✓	✓				all

Family Risk and Protective Factors Addressed by Promising Approaches

		Protective Factors						
	Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	Developmental Period
Family Domain	Family History of the Problem Behavior	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
	Family Management Problems	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Early Childhood Education	✓	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Family Therapy	✓	✓	✓	✓	✓	6-14
	Family Conflict	Marital Therapy	✓	✓	✓	✓	✓	prenatal
		Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Family Therapy	✓	✓	✓	✓	✓	6-14
	Favorable Parental Attitudes and Involvement in the Problem Behavior	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Community/School Policies	✓	✓	✓	✓	✓	all

School Related Risk and Protective Factors Addressed by Promising Approaches

		Protective Factors					Developmental Period
Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	
School Domain	Early and Persistent Antisocial Behavior	Early Childhood Education	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	prenatal-10
		Family Therapy	✓	✓	✓	✓	6-18
		Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	6-18
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	6-14
		School Behavior Management Strategies	✓		✓	✓	6-14
		Afterschool Recreation Programs	✓	✓	✓	✓	6-10
		Mentoring with Contingent Reinforcement	✓		✓	✓	11-18
	Academic Failure Beginning in Late Elementary School	Prenatal/Infancy Programs	✓	✓	✓	✓	prenatal-2
		Early Childhood Education	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	prenatal-10
		Organizational Change in Schools	✓	✓	✓	✓	6-18

School Related Risk and Protective Factors Addressed by Promising Approaches

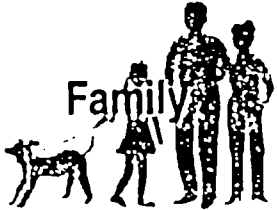
		Protective Factors					Developmental Period
Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	
School Domain	Academic Failure (continued)	Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	6-18
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	6-14
		School Behavior Management Strategies	✓		✓	✓	6-14
		Youth Employment with Education	✓	✓	✓	✓	15-21
	Lack of Commitment to School	Early Childhood Education	✓	✓	✓	✓	3-5
		Organizational Change in Schools	✓	✓	✓	✓	6-18
		Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	6-18
		School Behavior Management Strategies	✓		✓	✓	6-14
		Mentoring with Contingent Reinforcement	✓		✓	✓	11-18
		Youth Employment with Education	✓	✓	✓	✓	15-21

Individual/Peer Risk and Protective Factors Addressed by Promising Approaches

		Protective Factors					
Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	Developmental Period
Individual/Peer Domain	Rebelliousness	Family Therapy	✓	✓	✓	✓	6-14
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	6-14
		School Behavior Management Strategies	✓		✓	✓	6-14
		Afterschool Recreation	✓	✓	✓	✓	6-10
		Mentoring with Contingent Reinforcement	✓		✓	✓	11-18
		Youth Employment with Education	✓	✓	✓	✓	15-18
	Friends Who Engage in the Problem Behavior	Parent Training	✓	✓	✓	✓	6-14
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	6-14
		Afterschool Recreation	✓	✓	✓	✓	6-14
		Mentoring with Contingent Reinforcement	✓		✓	✓	11-18
	Favorable Attitudes Toward the Problem Behavior	Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	6-14
		Community/School Policies			✓	✓	
	Early Initiation of the Problem Behavior	Parent Training	✓	✓	✓	✓	6-14
		Classroom Organization Management and Instructional Strategy	✓	✓	✓	✓	6-10
		Classroom Curricula for Social Competence	✓	✓	✓	✓	6-14
		Community/School Policies	✓		✓	✓	all
	Constitutional Factors	Prenatal/Infancy Programs	✓	✓	✓	✓	prenatal-2

Addressing Risks and Protection With Effective Strategies

Risk Factor: Early and Persistent Antisocial Behavior

Domain	Program Strategy	Healthy Beliefs	Bonding
 Family	Early Childhood Education	✓	✓
	Parent Training	✓	✓
 School	Classroom Organization, Management and Instructional Strategies	✓	✓
	School Behavior Management Strategies	✓	
 Individual/Peer	Afterschool Recreation Programs	✓	✓

Addressing Risks and Protection With Effective Strategies

Risk Factor: Academic Failure Beginning in Late Elementary School

Domain	Program Strategy	Healthy Beliefs	Bonding
Family	Early Childhood Education	✓	✓
	Parent Training	✓	✓
School	Organizational Change in Schools	✓	✓
	Classroom Curricula for Social Competence Promotion	✓	✓
Individual/Peer	Youth Employment With Education	✓	✓

To: Jeremy Ben-Ami, DPC
Mike Cohen, DPC
Janet Crist, ONDCP
Debbie Fine, DPC
Beverly Godwin, NPR
Elaine Kamarck, NPR
Lisa Mallory, NPR
Ricia McMahn, ONDPC
Nicole Rabner, First Lady's Office
Billie Robbine, NPR
Linda Shannon, DPC Intern
Jeanine Smartt, DPC

From: Lyn Hogan

Date: November 11, 1996

Re: Background Material for David Hawkins Meeting

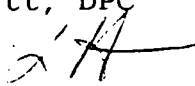
Please see the attached background material for the Wednesday, November 13, 3:30 p.m. discussion with David Hawkins in Room 180 OEOB.

cc: Carol Rasco

THE WHITE HOUSE

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To: Jeremy Ben-Ami, DPC
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Elaine Kamarck, NPR
Lisa Mallory, NPR
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Date: November 11, 1996

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Please see the attached background material for the Wednesday, November 13, 3:30 p.m. discussion with David Hawkins in Room 180 OEOB.

cc: Carol Rasco

J. DAVID HAWKINS

Dr. J. David Hawkins is Professor of Social Work, and Director of the Social Development Research Group, University of Washington, Seattle. He received his B.A. from Stanford University and his Ph.D. in Sociology from Northwestern University. His research focuses on understanding and preventing child and adolescent health and behavior problems. He seeks to identify risk and protective factors for health and behavior problems across multiple domains; to understand these factors interact in the development or prevention of problem behaviors; and to test comprehensive prevention strategies which seek to reduce risk through the enhancement of protective factors in families, schools, peer groups and communities. Since 1981, he has been conducting the Seattle Social Development Project, a longitudinal prevention study based on his theoretical work. He is co-developer of the Social Development Model, a theory which provides a foundation for positive development and delinquency and drug abuse prevention and co-author of "Preparing the Drug (Free) Years," a prevention program which empowers parents to strengthen family bonding and reduce the risks for drug abuse in their families. He is also co-author of Communities That Care: Action for Drug Abuse Prevention, co-editor of A Sourcebook on Serious, Violent, & Chronic Juvenile Offenders, and editor of Delinquency and Crime: Current Theories. He has served as a member of the National Institute of Drug Abuse's Epidemiology, Prevention and Services Research Review Committee, and the Office for Substance Abuse Prevention's National Advisory Committee. He currently serves on the National Education Goals Panel Resource Group on Safe and Drug Free Schools, and was a member of the Committee on Prevention of Mental Disorders of the Institute of Medicine at the National Academy of Sciences. He was awarded the NPN Seventh Annual Award of Excellence for Outstanding Contribution to the Field of Prevention, and was also named the University of Washington Lecturer for the 1996-1997 academic year. He is committed to translating research into effective practice and policy to improve adolescent health and development.

A Sourcebook

**Serious,
Violent,
& Chronic
Juvenile
Offenders**

**James C. Howell
Barry Krisberg
J. David Hawkins
John J. Wilson**
EDITORS



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Contents

Preface	vii
1. Trends in Juvenile Crime and Youth Violence <i>James C. Howell</i> <i>Barry Krisberg</i> <i>Michael Jones</i>	1
2. Comprehensive Strategy for Serious, Violent, and Chronic Juvenile Offenders <i>John J. Wilson</i> <i>James C. Howell</i>	36
3. Preventing Serious, Violent, and Chronic Juvenile Offending: Effective Strategies From Conception to Age 6 <i>J. David Hawkins</i> <i>Richard F. Catalano</i> <i>Devon D. Brewer</i>	47
4. Preventing Serious, Violent, and Chronic Juvenile Offending: A Review of Evaluations of Selected Strategies in Childhood, Adolescence, and the Community <i>Devon D. Brewer</i> <i>J. David Hawkins</i> <i>Richard F. Catalano</i> <i>Holly J. Neckerman</i>	61
5. Graduated Sanctions for Serious, Violent, and Chronic Juvenile Offenders <i>Barry Krisberg</i> <i>Elliot Currie</i> <i>David Onok</i> <i>Richard G. Wiebush</i>	142

6. Risk Assessment and Classification for Serious, Violent, and Chronic Juvenile Offenders	171
<i>Richard G. Wiebush</i>	
<i>Christopher Baird</i>	
<i>Barry Krisberg</i>	
<i>David Onek</i>	
7. The Prevention of Serious Delinquency and Violence: Implications From the Program of Research on the Causes and Correlates of Delinquency	213
<i>Terence P. Thornberry</i>	
<i>David Huizinga</i>	
<i>Rolf Loeber</i>	
8. Separating the Men From the Boys: The Comparative Advantage of Juvenile Versus Criminal Court Sanctions on Recidivism Among Adolescent Felony Offenders	238
<i>Jeffrey Fagan</i>	
9. Gangs and Youth Violence: Recent Research	261
<i>James C. Howell</i>	
10. Conclusion	275
<i>James C. Howell</i>	
<i>Barry Krisberg</i>	
Index	279
About the Contributors	293

3

Preventing Serious, Violent, and Chronic Juvenile Offending

Effective Strategies From Conception to Age 6

J. David Hawkins

Richard F. Catalano

Devon D. Brewer

Violent juvenile crime is rampant in the United States and has become an epidemic infecting nearly every community in the nation. In comparison to other industrialized countries, the United States has the highest homicide rate for males age 15 to 24, which is more than four times greater than the second highest national homicide rate and many times more than rates in other nations (Fingerhut & Kleinman, 1990). Youth violence in the United States also has been increasing in recent decades, and in the past few years, the increase has been especially dramatic (Allen-Hagen & Sickmund, 1993). Between 1965 and 1991, the violent crime arrest rate for juveniles tripled, and between 1987 and 1991, the rate increased 50%, which was twice the increase for adults. During the same period, the juvenile murder rate rose 85%—more than four times the increase for persons age 18 and older. Furthermore, assaultive violence is most prevalent in teenagers. Officially reported violent crime peaks at age 18 (Federal Bureau of Investigation, 1991). Self-reported violent behavior climaxes at age 17 for males and at age 15 to 16 for females

(Elliott, 1994). In 1991, juveniles accounted for 17% of all violent crime arrests (Allen-Hagen & Sickmund, 1993). Thus, violent juvenile crime in the United States is a problem demanding urgent attention.

In response to this crisis, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) has developed a comprehensive strategy for serious, violent, and chronic juvenile offenders. A small minority of juvenile offenders are responsible for the large majority of all juvenile offenses, including serious and violent crimes (Shannon, 1988; Wolfgang, Figlio, & Sellin, 1972). This chapter presents the early preventive intervention component of the comprehensive strategy. To reduce youth violence and crime, a multifaceted, coordinated approach is needed, and early intervention is a critical first step (U.S. General Accounting Office [GAO], 1992). The comprehensive strategy is a practical and feasible plan because it includes prevention, early intervention, and graduated sanctions for dealing with offenders in a coherent approach that can be implemented in communities.

The evidence is clear: Prevention approaches applied from conception through age 6 that seek to reduce risk and enhance protection can be effective in preventing crime, violence, and substance abuse in adolescence and young adulthood. This chapter describes the risk-focused prevention approach and outlines a comprehensive prevention strategy during the developmental period from conception to age 6 based on this evidence. In Chapter 4, we review preventive interventions in childhood, adolescence, and the community for preventing delinquency and violence.

This chapter first summarizes the risk-focused approach to prevention. Then, risk and protective factors for violence, crime, and substance abuse are briefly described and a theoretical framework for reducing risks and enhancing protective factors—the social development strategy—is outlined. Subsequently, tested and promising preventive interventions for the developmental period from conception through age 6 are reviewed. Many interventions in this period focus on families, which underscores their role in prevention. The final section of the chapter outlines a model for implementing a comprehensive community prevention strategy through creating community prevention boards that assess local risks and program resources and implement promising preventive interventions to address the unique risk and resource profile of the community.

RISK-FOCUSED PREVENTION

Risk-focused approaches to prevention were pioneered by public health professionals and have been successful in preventing problems as diverse as cardiovascular disease and traffic-related injuries (Institute of Medicine, 1994). Risk-focused approaches to prevention aim to interrupt the causal processes that are responsible for producing a problem (Coie et al., 1993; Hawkins & Catalano, 1992). Risk-focused approaches to the prevention of cardiovascular disease seek to reduce identified risk factors, such as smoking and a diet high in fat, and enhance protective factors, such as regular exercise. Risk-focused approaches to prevention of crime, violence, and substance abuse address factors that predict the risk of developing these problems during adolescence and young adulthood. Risk factors predict increased risk for developing a problem or disorder. Protective

factors, on the other hand, are conditions that counter risk factors or increase resistance to them and thus inhibit the development of problems even in the face of risk exposure. Risk and protective factors predict increased or decreased probability of developing problem behaviors but, just as actuarial tables do not predict the individual's life experience, they do not guarantee the development or lack of development of the problem behaviors. Preventive efforts seek to reduce risk factors and promote protective factors to foster healthy development and avert health and behavior problems.

Risk and protective factors stabilize as predictors of violence, crime, and substance abuse at different points in development. If risk and protective factors are addressed at or slightly before the developmental point that they begin to predict later violence, crime, or substance abuse, it is likely that risk reduction efforts will be effective. The following section reviews risk and protective factors that emerge from conception through age 6 and predict adolescent and young adult crime, violence, and substance abuse.

RISK FACTORS FOR CRIME, VIOLENCE, AND SUBSTANCE ABUSE FROM CONCEPTION TO AGE 6

Extensive research has identified risk factors for crime (cf. Yoshikawa, 1994), violence (cf. American Psychological Association, 1993; Reiss & Roth, 1993), and substance abuse (cf. Hawkins, Catalano, & Miller, 1992; Kandel, Simcha-Fagan, & Davies, 1986) from conception to age 6. In early childhood, these risk factors for crime, violence, and substance abuse can be grouped into three developmental sub-stages: pre-/perinatal, birth to age 4, and ages 4 to 6. Some of these risk factors can be changed, and some cannot. It is important to know about factors that cannot be changed because they help define populations that should receive preventive interventions that enhance protection in the face of risk exposure. Unless otherwise noted, the risk factors discussed here predict crime, violence, and substance abuse.

Pre-/Perinatal

Perinatal difficulties (including preterm delivery, low birthweight, and anoxia), *minor*

physical abnormalities, and *brain damage* (e.g., from infectious disease, traumatic head injury, or pre-/postnatal exposure to toxins such as heavy metals, alcohol, tobacco, or cocaine) predispose children to later violent and aggressive behavior and substance abuse (Brennan, Mednick, & Kandel, 1991; Michaud, Rivara, Jaffe, Fay, & Dailey, 1993). It is plausible that some of these conditions, such as brain damage, impair reasoning and impulse control, which may lead to increases in crime, violence, or substance abuse when an individual is in stressful situations.

Birth to Age 4

In this developmental period, risk factors are primarily found in the family environment. Children who are reared in a family with a *history of alcoholism* are more likely to engage in alcohol abuse themselves than are children who have no such family history (Institute of Medicine, 1994). This factor has a genetic or biological component (Gurling, Clifford, & Murray, 1981; Hrubec & Omenn, 1981).

Poor *family management practices* increase children's risk for health and behavior problems. Family management problems include parents' failure to set clear expectations for children's behavior; failure to supervise and monitor children; and excessively severe, harsh, or inconsistent punishment (including child maltreatment or neglect). Children exposed to such poor family management practices are at increased risk for substance abuse and crime (Kandel & Andrews, 1987; Yoshikawa, 1994).

Family conflict also increases risk for crime, violence, and substance abuse. Children who grow up in an environment of conflict among family members, regardless of family structure, are more likely to exhibit problem behaviors than are children raised in families without significant conflict (Hawkins et al., 1992; Institute of Medicine, 1994; Yoshikawa, 1994).

In addition, *parental attitudes toward and involvement in crime and substance abuse* affect the attitudes and behavior of children. Children whose parents engage in crime and abuse substances are more likely to engage in crime and abuse substances themselves (Hawkins et al., 1992). Children whose parents are aggressive and who witness or are victims of violence in the home are more likely to be-

come aggressive and violent themselves in adolescence and young adulthood (Farrington, 1991; McCord, 1988; Patterson, Capaldi, & Bank, 1991; Salzinger, Feldman, & Hammer, 1993). Parents who involve their children in their substance use, such as allowing them to pour alcoholic drinks, put their children at even higher risk for substance abuse (Ahmed, Bush, Davidson, & Iannotti, 1984).

Ages 4 to 6

The previously described risk factors continue to predict later health and behavior problems, if present during this period. In addition, *early antisocial behavior* in this period predicts later criminal behavior, violence, and substance abuse. Children who display antisocial behavior during this period, such as aggression, negative moods, and temper tantrums, are more likely to engage in crime, violence, and substance abuse in adolescence and adulthood (Farrington, 1991; Institute of Medicine, 1994; Robins, 1978).

Academic failure is a risk factor for crime, violence, and substance abuse that stabilizes as a predictor just after this stage (Hawkins et al., 1992; Yoshikawa, 1994). Studies show that from about Grade 4, academic achievement stabilizes as a predictor for later health and behavior problems. However, it appears that a number of efforts to promote cognitive development from ages 4 to 6 have lasting effects on academic performance. Thus, efforts to promote academic readiness at ages 4 to 6 are worthy of consideration for their risk reduction potential.

Community Risk Factors

Risk factors for crime, violence, and substance abuse exist in the broader community context as well. These can affect children from birth. Children who live in *economically deprived areas* characterized by extreme poverty, poor living conditions, and high unemployment are more likely to engage in crime and violence (Farrington, 1991; Yoshikawa, 1994). In addition, children who reside in *disorganized neighborhoods* with high rates of crime and violence, high population density, physical deterioration, lack of natural surveillance of public places, and low levels of attachment to the neighborhood are at elevated risk for criminal and violent behavior and substance abuse

(Sampson, 1994; Yoshikawa, 1994). Recognition of these risk factors suggests that preventive interventions from conception through age 6 should reach families and children in economically distressed and disorganized neighborhood environments.

There are other factors that affect risks communitywide—including laws and norms favorable to crime, weapons, and substance use (Hawkins et al., 1992; Reiss & Roth, 1993); availability of weapons, alcohol, and other drugs (Hawkins et al., 1992; Reiss & Roth, 1993); transitions and mobility (Hawkins et al., 1992); and exposure to media violence (Eron & Huesmann, 1987)—that are not specific in their effects during the period from conception to age 6 and that are not specifically addressed by the early prevention interventions described here. These and other risk factors (lack of commitment to school, alienation and rebelliousness, association with peers who engage in delinquency and violence, favorable attitudes toward delinquency, and early initiation of delinquency and violence or substance abuse) that affect risk in later developmental periods are addressed in Chapter 4 that reviews delinquency and violence prevention programs in childhood, adolescence, and the community.

Conclusions About Risk

The following generalizations regarding risks for crime, violence, and substance abuse have important implications for risk-focused prevention. Risks affecting children from conception through age 6 are found in the individual, the family, and the community. Moreover, exposure to a greater number of risk factors increases risk of crime, violence, and substance abuse exponentially (Institute of Medicine, 1994; Newcomb, Maddahian, Skager, & Bentler, 1987; Rutter, 1980). These findings suggest that prevention programming must use multiple strategies to reduce multiple risk factors. Agencies that traditionally administer categorical funds will need to find ways to collaborate in reducing a variety of risks at multiple levels if a risk-focused prevention approach is to reach its full potential.

Because common risk factors during the period from conception through age 6 predict diverse problem behaviors, including crime, violence, and substance abuse, generic prevention strategies that address these common risk fac-

tors during early development should have broad-ranging effects on a range of health and behavior problems. Thus, comprehensive, risk-focused prevention initiatives should not be conceived or evaluated from narrow categorical perspectives but should be designed and implemented to reduce overall levels of risk exposure at the individual, family, and community levels. Effects on a broad range of health and behavior problems, including substance abuse, dropping out of school, teen pregnancy, violence, and crime, should be evaluated.

PROTECTIVE FACTORS FOR CRIME, VIOLENCE, AND SUBSTANCE ABUSE FROM CONCEPTION TO AGE 6

Research with populations exposed to multiple risks has identified subgroups of individuals who negotiate risk exposure successfully, escaping relatively unscathed. This research has led to studies of the factors that protect against risk exposure. Protective factors predict successful outcomes even in the face of risk exposure.

Three classes of protective factors have been identified: factors inherent in the individual, factors related to the development of social bonding, and healthy beliefs and clear standards for behavior (Hawkins et al., 1992). Individual protective factors include female gender, high intelligence, a positive social orientation, and a resilient temperament. Social bonding includes warm, supportive, affective relationships or attachments with family members or other adults. It also includes the development of commitment to the lines of action valued by a social group such as family. Healthy beliefs and clear standards include family and community norms opposed to drug use, crime, and violence and supportive of educational success and healthy development.

THE SOCIAL DEVELOPMENT STRATEGY

The social development strategy is a prevention approach for reducing identified risk factors by enhancing known protective factors against health and behavior problems (Hawkins & Catalano, 1992). The social development strategy is derived from major criminological theories, including social learning theory, dif-

differential association theory, and social control theory (Catalano & Hawkins, 1996). The strategy specifies how protective factors can be introduced to work together to protect children exposed to risk.

The goal of the strategy is healthy children. Healthy beliefs and clear standards for behavior in the family and community promote healthy behavior in children. To illustrate, epidemiological studies have documented the impact of changing beliefs about the social acceptability and perceived risks of marijuana and cocaine use on the prevalence of use of these drugs among high school seniors in the United States. Increasing social disapproval of use and an increased perception of risk associated with these substances was followed by a reduction in the prevalence of marijuana and cocaine use by high school seniors through the early 1990s (Johnston, 1991). More recently, a decrease in the perceived harmfulness of marijuana use in 1992 was followed by an increase in the prevalence of marijuana use in 1993 in the Monitoring the Future epidemiological study. Healthy beliefs and clear standards have just begun to be discussed as they apply to violence in families, neighborhoods, and communities. We are only starting to question the hitting of children as a family discipline technique, say publicly that fighting and violence are not acceptable ways to solve problems, and communicate that entertainment that models violent solutions to problems should not be sponsored. We need to set clear standards about what is acceptable behavior in the United States in the 1990s and beyond.

We must also re-create a sense of community, of bonding in the United States. Despite the change in norms, thousands of young people in the United States each year use tobacco, alcohol, marijuana, cocaine, and other drugs. These young people are unaffected by the new norms against drug use because they have no investment in the groups that are communicating the healthy beliefs and clear standards about drugs. In part as a result of risk exposure in their families, schools, and communities, these young people ignore the messages that some of these groups may be seeking to communicate. For this group to accept these messages, we must first help them to develop the motivation to live by healthy standards for behavior. The social development strategy suggests that those who are bonded to individuals and institutions that promote healthy beliefs

and clear standards will adopt similar beliefs and standards. Bonding can provide the motivation that youth need to protect them from exposure to risk. Children who are bonded to those who hold healthy beliefs do not want to threaten that bond by behaving in ways that would jeopardize their relationships and investments.

To build bonding to a social unit, three conditions must be met. Children must be provided with meaningful, challenging *opportunities* to contribute to their family, school, peers, and community that help them feel responsible and significant. Children also must be taught the *skills* needed to take advantage effectively of the opportunities they are provided. If children do not have the skills necessary to be successful, they experience frustration and/or failure. Finally, children must receive *recognition* for their efforts. Recognition and acknowledgment give children the incentive to continue to contribute and reinforce their skillful performance. Individual protective factors affect one's ability to perceive opportunities, develop skills, and perceive recognition. For example, if a child has a positive social orientation, he or she is more likely to see a child care setting as an opportunity to make new friends. A child with high intelligence may have an easier time learning to read in the classroom of a mediocre teacher than do other children.

PREVENTION PRINCIPLES

An understanding of the evidence on risk and protective factors for crime, violence, and substance abuse suggests a set of principles that should guide prevention programming.

1. To be effective, prevention efforts must address known risk factors for crime, violence, and substance abuse.
2. Prevention efforts must make a clear connection between the program activities and the goal of risk reduction. To illustrate, family management problems have been identified as a risk factor for health and behavior problems in children. Family management problems may emerge from different sources. If, for example, family management problems are thought to occur because parents who work need more effective ways to moni-

for their children's behavior. Child care centers, schools, and latchkey programs could summarize children's daily behavior for parents to assist them in monitoring their children's behavior when they are not present. Alternatively, family management problems may arise from a lack of knowledge of effective discipline techniques. In this case, providing parents with opportunities to learn and practice a variety of discipline techniques may be effective. The link between prevention activities and the risk reduction objective should be clearly specified.

3. Prevention programs should seek to strengthen protective factors while reducing risk.
4. Risk reduction activities should address risks at or before the time they become predictive of later problems. Intervening early to reduce risk is likely to minimize the effort needed and maximize the outcome. For example, interventions to improve family management practices prenatally and in infancy are likely to be more effective than waiting to initiate the intervention until after a referral for abuse and neglect.
5. Interventions should target individuals and communities that are exposed to multiple risk factors. Because there is evidence that those exposed to multiple risks are at much elevated risk, efforts to prevent chronic and serious problems of crime, violence, and substance abuse are most likely to be effective if focused on these populations. Working with whole communities has advantages in that individual children are not labeled at very early ages as potential problems. Families at risk include those headed by single, poor, and/or teenage mothers. Communities at risk include poor and disorganized neighborhoods with high levels of crime, violence, and substance abuse. A communitywide approach allows higher- and lower-risk families in a neighborhood to work and learn together, modeling, supporting, and reinforcing efforts to strengthen protective factors and processes.
6. Because multiple risks present in multiple domains predict serious crime, vio-

lence, and substance abuse, multi-stranded prevention approaches should be used that address key risk factors affecting a neighborhood or community.

7. Prevention programs must be designed and implemented to reach and be acceptable to the diverse racial, cultural, and socioeconomic groups to be included.

EFFECTIVE EARLY INTERVENTIONS

This section summarizes the evidence on prevention program effectiveness in reducing risks and enhancing protective factors for violence, crime, and substance abuse. Hawkins and Catalano (1992), Hawkins et al. (1992), Institute of Medicine (1994), Olds and Kitzman (1993), and Yoshikawa (1994) have extensively reviewed rigorously designed evaluations of preventive interventions targeting risk factors for delinquency, violence, and substance abuse. The reader is referred to these sources for more complete descriptions of programs and their effects.

The programs described here have demonstrated their ability to reduce risks and enhance protective factors against crime, violence, and substance abuse. Some of these programs have demonstrated long-term preventive effects on crime, violence, and substance abuse as well. Only programs that provide services to individuals and/or their families are included here. Community activation, community development, community policing, changes in laws or regulations, and other communitywide interventions aimed at affecting broad community risks are discussed in Chapter 4 on delinquency and violence prevention programs in childhood, adolescence, and the community.

It should be noted that the preventive interventions discussed here have been tested extensively for their effects on reducing risks among children born to single (often teen) mothers in poverty. Preventive initiatives using these early interventions should be designed and implemented to reach those children at risk by virtue of low birthweight; preterm birth; and/or an unwed, poor, or teenaged mother. The interventions discussed here are organized developmentally from the prenatal period through age 6.

Pre-/Perinatal

Routine *pre- and perinatal medical care* decreases the incidence of perinatal difficulties and minor physical abnormalities (Institute of Medicine, 1994). Interventions should use the broad definition of prenatal care recommended by the U.S. Public Health Service Expert Panel on the Content of Prenatal Care (USPHS, 1989) and include education for the mother regarding the physiological and emotional changes of pregnancy, fetal growth and development, and psychosocial preparation for childbirth. Furthermore, home visitation by health professionals during pregnancy that includes *intensive health education for the mother* improves high-risk mothers' (e.g., smokers, teens) health-related behaviors and reduces the rates of pre-term deliveries and low-birthweight babies (Olds & Kitzman, 1993). Health education can decrease the pregnant mother's use of alcohol and other drugs, which helps to prevent brain damage in the infant. Community-level efforts to prevent head and other injuries (see U.S. Department of Health and Human Services, 1992) also should be part of a comprehensive strategy to reduce the occurrence of injuries resulting in brain damage.

Birth to Age 4

Three types of interventions in this developmental substage address risk and protective factors for crime, violence, and substance abuse. These are immunizations, home- and family-based interventions, and educational day care/preschool. The length and timing of the interventions in this developmental substage vary from program to program, and in practice, several types of interventions are typically combined into one multicomponent program. Many interventions that begin in this period also can be continued in the developmental substage from ages 4 to 6.

Immunizations

All children, regardless of individual circumstance, should be immunized against such infectious diseases as poliomyelitis, diphtheria, pertussis, tetanus, measles, mumps, rubella, meningitis, and hepatitis B. Protection against many of these diseases helps to prevent associated brain damage, a risk factor for later

crime, violence, and substance abuse (Institute of Medicine, 1994).

Home- and Family-Based Interventions

Home- and family-based interventions usually involve a professional or trained paraprofessional service provider visiting the family at home. The content of these interventions has differed among programs, and multicomponent programs have used different combinations of interventions. Therefore, each type of intervention is mentioned here separately, although most evaluations have documented the effects of combinations of several of these interventions.

Parent training serves to reduce the risks of poor family management practices and a child's early aggressive behaviors and conduct problems (Hawkins et al., 1992; Olds & Kitzman, 1993). Parent training typically entails instructing parents on how to set clear expectations for behavior, monitor children's behavior, reinforce positive behavior, provide consequences for inappropriate behavior, develop and use effective communication skills, and nurture children. Parent training interventions can be successfully implemented individually through videotape instruction (Webster-Stratton, 1984, 1992), parent groups, and home visitors.

Programs that are designed to enhance parent-child interaction promote a child's bonding to family (Hawkins & Catalano, 1992; Olds & Kitzman, 1993). Many interventions of this type involve structured activities, such as a parent and child playing games together, that may be monitored by a home visitor. The use of infant carriers (such as the Snuggli) that are strapped to the parent also increases the amount and quality of parent-child interaction and thereby strengthens a child's attachment to the adult caretaker (Anisfeld, Casper, Nozyce, & Cunningham, 1990).

Child cognitive development activities may be carried out by a home visitor or a parent (Olds & Kitzman, 1993). These activities often emphasize language development and may involve interactive reading to children as well as structured play sessions with toys.

Family support interventions also address risk factors of poor family management, parental drug use and crime, extreme economic deprivation, and academic failure, and the protec-

ive factor of parent-child bonding. *Health education for mothers of young children* may help reduce mothers' substance use (Olds & Kitzman, 1993). Home visitors' *promotion of social service use and assistance to mothers in achieving educational and occupational goals* both counter high-risk families' economic deprivation (Olds & Kitzman, 1993; Yoshikawa, 1994). Home visitors can act as advocates for the family, helping family members obtain needed social services and encouraging the mother to pursue her educational and occupational plans, such as returning to high school to complete a GED. Furthermore, provision of *instrumental support to mothers*, such as child care, offsets some of the hardships caused by economic deprivation (Olds & Kitzman, 1993). Transportation to health clinics and early education centers is another example of instrumental support that can be necessary if families are even to receive intervention services. A *toy and/or book lending library*, which is intended to aid in children's cognitive development, also may be offered in conjunction with home visitation services or an early education program (Olds & Kitzman, 1993). Home visitors' provision of *social support to mothers* helps engage parents in an intervention and can reinforce parents' learning and behavior changes (Olds & Kitzman, 1993). By becoming a friend of the family who cares and listens, the home visitor is in a good position to educate and influence family members in positive ways.

The Prenatal/Early Infancy Project is an example of a comprehensive program that includes many of the intervention components from both the pre/perinatal period and the birth to age 4 developmental substage (Olds, Henderson, Chamberlin, & Tatelbaum, 1986; Olds, Henderson, Tatelbaum, & Chamberlin, 1986). This program targeted a semirural Appalachian region of New York State that had high rates of poverty and child abuse. Most of the mothers in the sample were unmarried and from the lowest socioeconomic group, and nearly half were teenagers. In the full implementation of the program, home visitation by a nurse began during pregnancy and continued until children were 2 years old. These nurses provided mothers with health education, parent education, job and education counseling, health and social service linkage via referral and advocacy, and emotional and social support. The nurses also encouraged close friends and family members of the mothers to partici-

pate in the home visits and assist mothers with their needs, including child care and household responsibilities.

The project was evaluated using a randomized clinical trial design. The evaluation demonstrated significant reductions in several risk factors. Program participation decreased perinatal difficulties for teenage mothers and mothers who smoked. In addition, 24 months after the end of the program, the rate of verified child abuse and neglect was 19% in the control group but only 4% for program participants. Furthermore, of the mothers who had not finished high school at the beginning of the study, program participants were twice as likely as controls to graduate high school or be enrolled in an educational program. Program participation also increased employment for single, poor, older mothers and delayed subsequent pregnancies for single, poor mothers.

Parent-Child Interaction Training is another example of a program during this period that effectively reduced risk factors such as poor family management practices and early antisocial behavior (Strayhorn & Weidman, 1991). This program targeted low-income parents who had complained that their preschool children (ages 2 to 5) exhibited at least one behavioral or emotional problem. Most parents were unmarried and experiencing depressive symptoms, and the sample was predominantly African American. In the program, parents participated in 4 to 5 two-hour, small group sessions with instruction and role-playing on parenting skills, including behavioral management. Parents also were trained to play constructively with their preschool children and conduct individual play sessions with them, attending sessions until they reached a criterion level. A randomized trial showed that at the 1-year follow-up, program children improved significantly more than did controls in terms of teacher-rated attention-deficit/hyperactive, aggressive, and anxious behavior.

Although it has not been rigorously evaluated, the Healthy Start program in Hawaii is a promising example of a statewide, policy-driven, early intervention program. Healthy Start is an ongoing service project that aims to prevent child abuse and neglect through reducing risks of poor family management and academic failure and enhancing the protective factor of parent-child bonding (Breakey & Pratt, 1991). Healthy Start screens mothers who are admitted to hospitals for childbirth and uses

indicators for determining at-risk status. The screening procedures are effective in identifying those families at high and low risk for child abuse and neglect (Hawaii State Department of Health, 1992). Families determined to be at risk are offered comprehensive early intervention services, and approximately 95% of the families accept the offer for services. The program serves families beginning postpartum and continues until children are age 5. Healthy Start provides linkage to a "medical home," which emphasizes preventive health care, and comprehensive home visitation by trained paraprofessionals, which includes parent training/education, family counseling, enhancement of parent-child interaction, child development activities, health and social service linkage and coordination, and emotional and social support. Home visits are weekly in the beginning, but the level and intensity of services varies over time with the needs and risk level of the families.

Educare

Structured educational day care, or educare, and preschool programs that emphasize language development (including teacher-directed, student-centered, and student-initiated programs) advance children's cognitive and social development (Yoshikawa, 1994). Different structured programs seem about equally effective in reducing these risk factors and enhancing children's bonds to school and home (Hawkins & Catalano, 1992).

Three major controlled studies of early childhood education and home visitation have followed up participants well into adolescence and have shown these interventions to predict lower rates of violence and crime. The Perry Preschool program is one example (Berrueta-Clement, Schweinhart, Barnett, Epstein, & Weikart, 1984). The program used the High/Scope Cognitively Oriented curriculum to foster social and intellectual development in children age 3 to 4 years. The program targeted children with below average IQs from low-income African American families in a poor neighborhood in Ypsilanti, Michigan. Nearly half of the children in the study were from single-parent families. In the program, the preschool teacher divided the classroom into language-oriented learning centers that encouraged children to use, experience, and discover language through

activities and play. The teacher and child jointly planned and initiated activities. In addition to early education, the program had a home visitation component in which teachers met with each mother and child weekly. The teacher encouraged the mother to engage the child in activities in a manner consistent with the classroom curriculum.

In a randomized trial, the Perry Preschool program showed significant reductions in risk factors as well as criminal and violent behavior (Berrueta-Clement et al., 1984). Program participants attached greater importance to school and displayed higher academic achievement than did controls as indicated by standardized tests and grade point averages in high school, high school completion rates, and literacy levels at age 19. By age 19, only 31% of program participants, as compared with 51% of controls, had ever been arrested or charged with a crime. Program participants also self-reported approximately 50% less violent behavior than did controls. The Perry Preschool program also had other positive impacts, including better employment and a lower likelihood of receiving public assistance by age 19 for program participants in comparison with controls.

Two other programs that employed early education and home and family interventions are the Houston Parent-Child Development Center and the Syracuse Family Development Research Project. During the first year of the child's life, the Houston Parent-Child Development Center program consisted of home visitation services that focused on enhancement of parent-child interaction and child cognitive development activities. The second stage of the program began when the child was age 2 and consisted of center-based educational nursery school and center-based parent training. Participants in the Houston Parent-Child Development Center program displayed less teacher-rated fighting and disruptive, impulsive, and restless behavior than did control children at 5 to 8 years follow-up when children were ages 8 to 11 years (Johnson & Walker, 1987). The Family Development Research Project included a home visitation component with parent training, enhancement of parent-child interaction, child cognitive development activities, social support, promotion of social service use, and a toy and book lending library. The other components of the program were center-based educational child care and a parent organization. A follow-up evaluation showed that only 6%

of the program participants had juvenile records by age 15, in comparison to 22% of the controls (Lally, Mangione, & Honig, 1988). Moreover, program participants who had juvenile records committed less serious and fewer offenses than did control subjects who had juvenile records.

Ages 4 to 6

As children prepare to enter elementary school, the preventive interventions implemented in the earlier developmental periods should be supplemented with *social competence curricula*. A social competence curriculum may be delivered at preschool centers or at home by parents. These curricula aim to counteract and prevent early antisocial behavior by teaching basic interpersonal skills (Hawkins et al., 1992).

Two examples of programs of this type are the Interpersonal Cognitive Problem-Solving (ICPS) and the PATHS curricula. The ICPS curriculum seeks to decrease impulsivity and inhibition (Shure & Spivack, 1980; Spivack & Shure, 1989). The program format consists of daily lessons in the form of games. Early lessons focus on simple word concepts, such as "not," "or," "same," "different," and "because," that are essential for understanding later problem-solving skills. The rest of the curriculum emphasizes alternative solutions to interpersonal problems, consequential thinking, and recognition of and sensitivity to others' feelings. In preschool, kindergarten, and home implementations of the ICPS curriculum with children from low-income, urban families, the social competence training produced significant and durable effects on behavioral adjustment, including aggressive and socially inappropriate behaviors, and problem-solving skills when children exposed to the program were compared with controls (Shure & Spivack, 1980, 1982, 1988).

PATHS (Providing Alternative Thinking Strategies) is a more recently developed social competence curriculum that seeks to reduce early antisocial behavior by integrating emotional, cognitive, and behavior skill development in young children (Greenberg & Kusche, 1993). The PATHS curriculum begins with kindergarten children and has four main objectives: (a) control arousal and behavior through self-regulation ("stop and calm down"); (b) de-

velop affective vocabulary and emotion processing to help understand self and others; (c) integrate affective, cognitive, and linguistic skills for effective social problem solving; and (d) promote positive self-esteem and effective peer relations. Lessons are developmentally sequenced and include dialoguing, role playing, modeling by teachers and peers, social and self-reinforcement, attribution training, and verbal mediation. The program has been evaluated and found to be effective in reducing behavior problems of deaf children (Greenberg & Kusche, 1993). Although evaluations are ongoing with hearing populations, the approach represents an advance over earlier social competence curricula because it integrates skills to recognize and regulate emotions with cognitive and behavioral skills training, an element missing from earlier skills training programs.

PLANNING AND IMPLEMENTING EARLY PREVENTIVE INTERVENTIONS

The overall effectiveness of a community's prevention efforts will be determined by the processes used to decide on the prevention strategies to be included, by the specific preventive interventions used, and by the methods used to implement these interventions. Prevention programs should *address the highest priority risk factors* to which children in the community are exposed. Communities are likely to have different profiles of risk. The greatest effects will result from interventions that address those factors that put children in a particular community at most danger of developing serious criminal, violent, or substance-abusing behavior. Each community needs to assess its unique risk factor profile as a foundation for selecting and designing preventive interventions that address the risk factors most noxious in that community.

Interventions must be able to *reach and communicate effectively with the population at risk*. This is a critical element of intervention. To be effective, prevention programs must be designed to address diverse populations. Preventive interventions must empower people to take ownership of the intervention techniques. Without this ownership, it is difficult for even the most potent intervention to be applied with sufficient vigor to change a neighborhood, fam-

ity, or child. Combining knowledge of effective risk- and protective factor-focused prevention programs with local ownership of prevention initiatives will result in the best outcomes.

Interventions should be long term for the full preventive benefits to be realized. Sustained efforts are required to change and shape behavior patterns. To illustrate, in programs using home visitors to deliver services, long-term intervention increases the likelihood of the mother and visitor developing a trusting relationship, and consequently, the mother forging a lasting commitment to her own and her child's development (Olds & Kitzman, 1993). "Quick fixes" are unlikely to have enduring effects in preventing crime, violence, and substance abuse.

Preventive interventions require a service delivery system that is unified in its vision of risk-focused prevention and employs personnel trained for specific intervention tasks to be successful (cf. Gombo, Larson, Lewit, & Behrman, 1993). Those who control social, health, legal, and educational resources in a community as well as service providers should be guided by a shared understanding of the risk-focused approach to prevention if adequately funded, well-coordinated, and comprehensive risk reduction efforts are to be implemented. Beyond this, service providers, whether professionals or paraprofessionals, must be given thorough training in the preventive methods they are expected to implement. All staff require regular inservice training, supportive supervision, and sufficient compensation in order to provide quality services, engage families and children in the intervention, and alleviate job stress. Special prevention-oriented training and technical assistance may be needed to facilitate these changes in a community's service delivery system.

Finally, expectations about the magnitude of intervention effects should be realistic. Good early intervention programs tend to show modest to moderate benefits, and early intervention alone is not a "silver bullet" to serve all prevention needs. Larger reductions in crime, violence, and substance abuse are more likely if preventive efforts also include programs directed at other developmental stages and involve community-level interventions (for details, see Hawkins et al., 1992, Institute of Medicine, 1994, and Chapter 4, this volume, on delinquency and violence prevention in childhood, adolescence, and the community).

A MODEL FOR IMPLEMENTING A COMPREHENSIVE EARLY INTERVENTION STRATEGY

The foregoing considerations regarding planning and implementation suggest that a comprehensive early intervention strategy is best implemented and coordinated at the community level. An example of an approach for community implementation of a risk-focused prevention strategy is the Communities That Care (CTC) strategy (Hawkins & Catalano, 1992). The strategy is a comprehensive, long-term, communitywide approach that allows communities to tailor early intervention efforts in response to epidemiological evidence on risk and protective factors in the community. The strategy recognizes and builds on existing resources and programs in the community to develop a comprehensive system for risk reduction and enhancement of protective factors.

The Communities That Care strategy results from more than 14 years of research on delinquency and substance abuse prevention. It consists of a planning phase and an implementation phase. The planning phase, which spans 1 year, involves community mobilization, risk and resource assessment, and strategic planning. This phase begins by orienting key community leaders—including mayors, police chiefs, judges, school superintendents, and business, civic, and religious leaders—to the risk-focused prevention approach. The orientation assists key leaders in assessing their community's readiness for the approach. Involving key leaders in the process makes it more likely that they will commit resources to prevention once the community's strategic prevention plan is completed. After the orientation, the key leaders appoint or identify a community prevention board that is made up of diverse community members, including key informal leaders, grassroots community leaders, and educational, law enforcement, and health and human service delivery personnel. The prevention board is established as a permanent institution of the community. Once established or identified, the community prevention board is trained to assess its community's risks and resources through collecting data on risk factor indicators and assessing existing programs. After assessment is completed, the community board prioritizes risk factors that are elevated or trending in unwanted directions, identifies

programming gaps, and learns about effective approaches to address priority risk factors. The board then creates a strategic prevention plan that specifies prevention programs to address high-priority risk factors in the community. Existing programs that address high-priority risk factors in the community are included in the strategic plan. The plan includes a design for process and outcome evaluations of the strategy.

The implementation phase begins at this point. The board creates task forces for each program element in the action plan. These task forces oversee program planning and implementation in that area. The board then implements the identified programs. On an ongoing basis, the community board systematically evaluates the implementation and outcomes of the programs, completing a new risk and resource assessment at least every 2 years. As changes in risk and protective factors occur in the community, the community board can adjust its prevention plan to reflect these changes. This allows the prevention board to redesign its plan to meet changing conditions produced by either the preventive interventions' effectiveness or changing risk conditions.

To summarize, efforts to prevent crime, violence, and substance abuse should focus on reducing risk factors and increasing protective factors against these problems identified through longitudinal and epidemiological research. This chapter has outlined the risk and protective factors for these problem behaviors during the developmental period from birth to age 6 and has reviewed promising interventions that reduce risk and enhance protection. To implement these interventions, communities should own, design, and guide their own comprehensive local strategies using the risk-focused prevention approach. Communities that find risk factors affecting children from conception through age six to be major contributors to overall levels of community risk should consider the preventive interventions reviewed in this chapter for inclusion in their strategic prevention plans.

NOTE

1. The prevention of substance abuse is included within the scope of this comprehensive intervention strategy because substance abuse frequently contributes to violent and criminal behavior. For example,

in 1991, 67% of the persons arrested in 24 urban areas were under the influence of some drug (National Institute of Justice, 1992). Moreover, efforts for preventing crime, violence, and substance abuse should be combined, since all three problem behaviors are predicted by a number of common risk factors.

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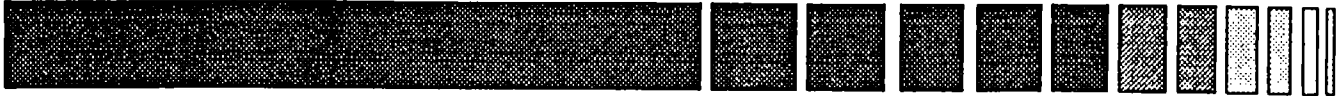
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Effective Interventions

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for the
Mott Children's Health Center
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Reducing Risks for *Mental Disorders*



Frontiers for Prevention Intervention Research

Patricia J. Mrazek and Robert J. Haggerty
Editors
Committee on Prevention of Mental
Disorders

Division of Biobehavioral Sciences and
Mental Disorders

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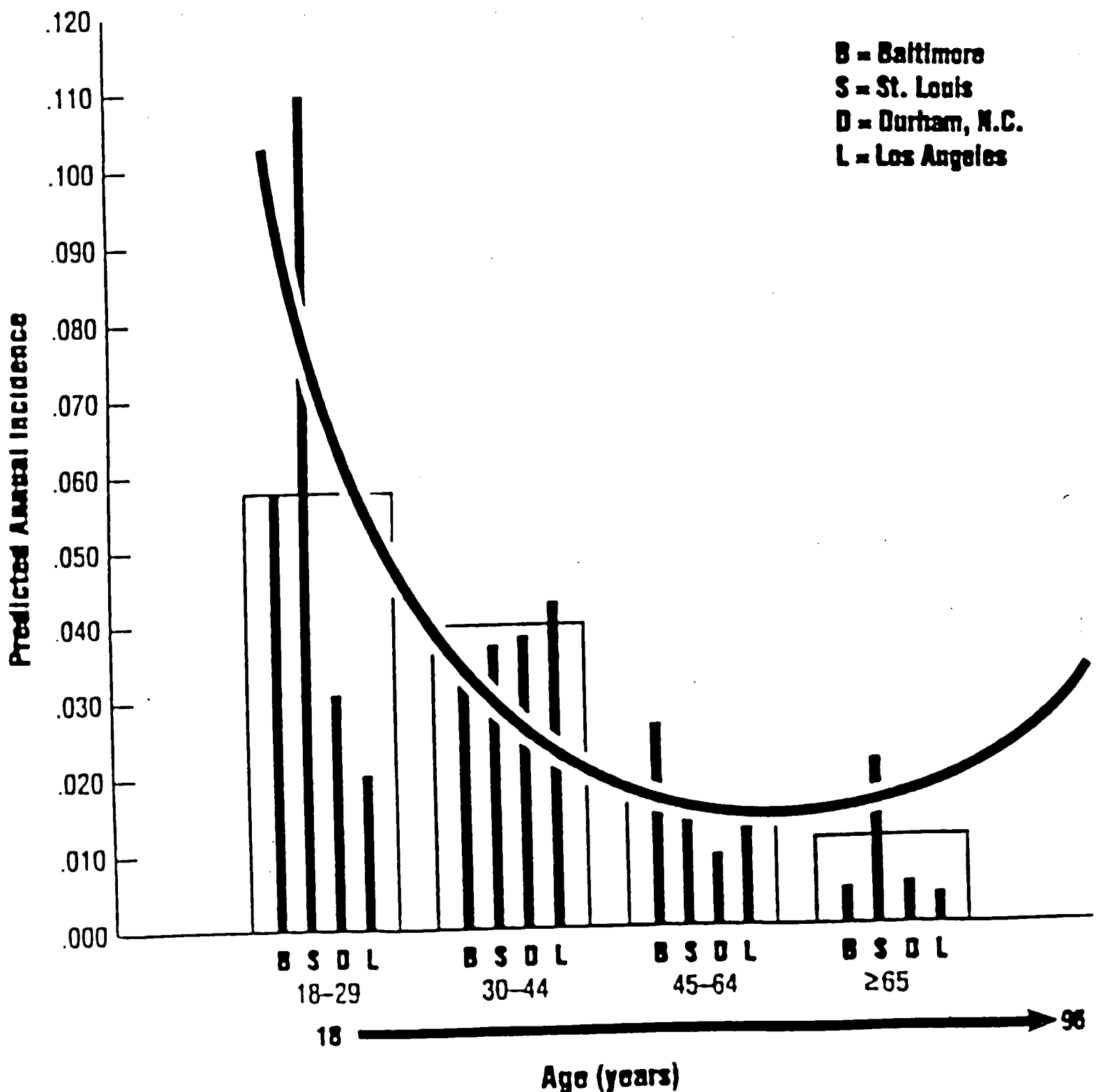


FIGURE 5.1 Annual incidence of DIS/DSM-III Alcohol Abuse/Dependence.

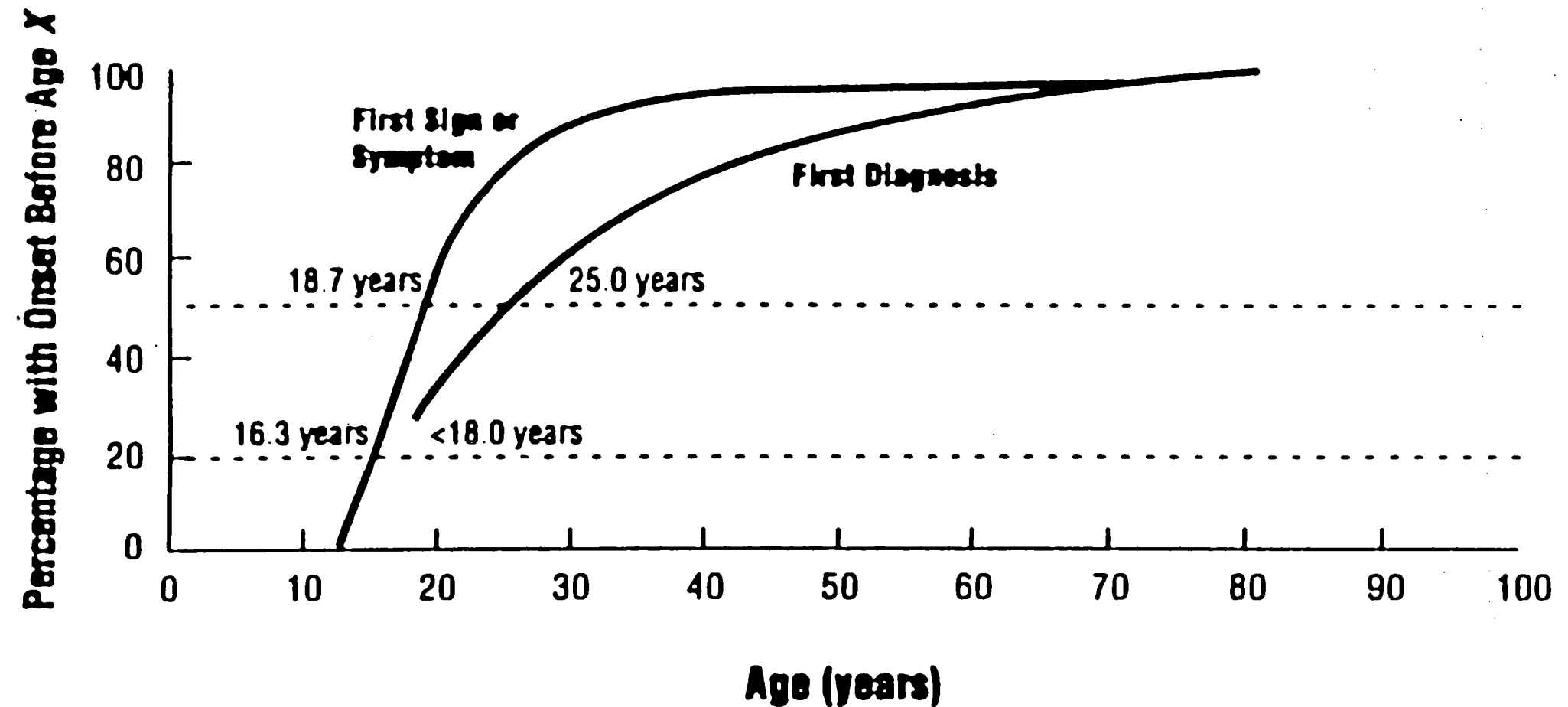


FIGURE 5.2 Age of onset of DIS/DSM-III Alcohol Abuse and Dependence. Population estimates are from 125 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

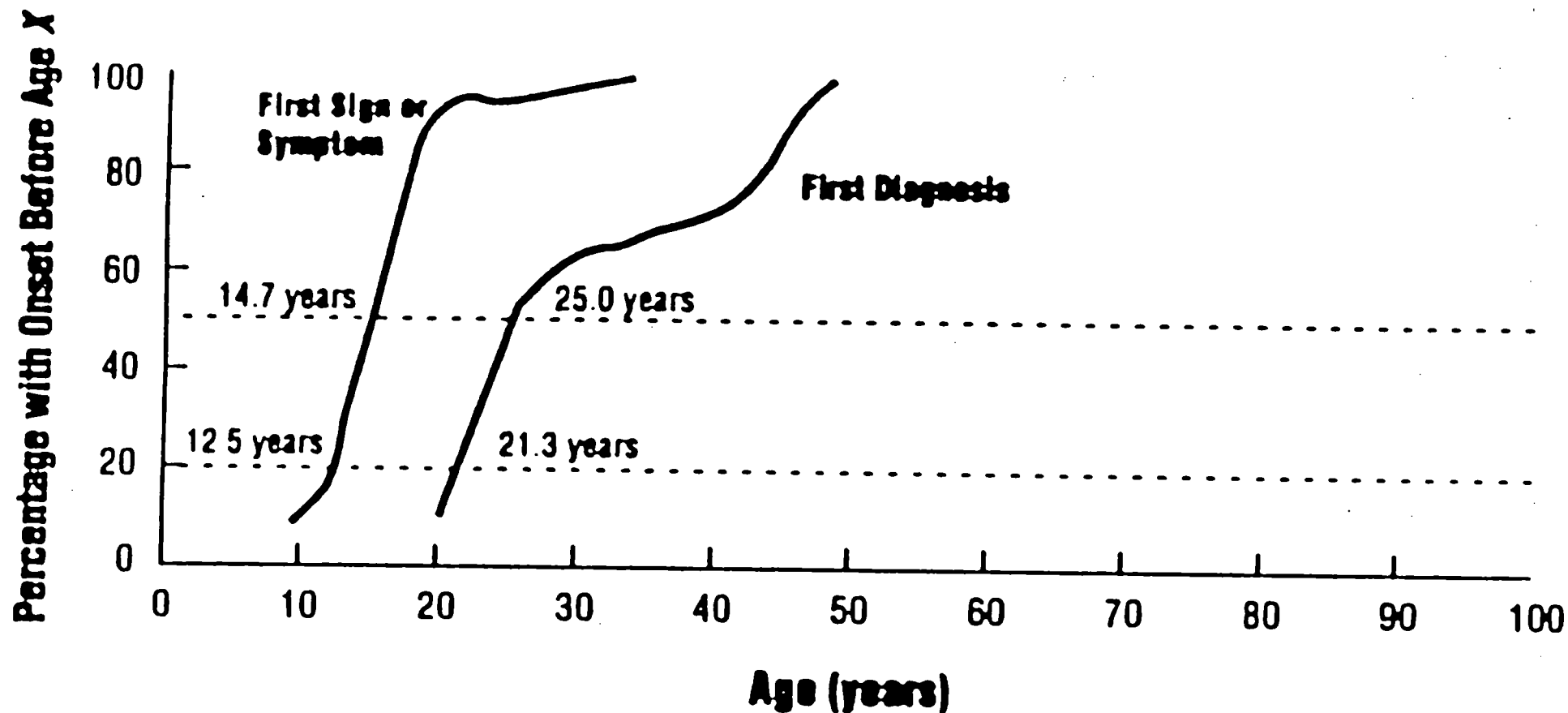


FIGURE 5.3 Age of onset of DIS/DSM-III Antisocial Personality Disorder. Population estimates are from 46 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

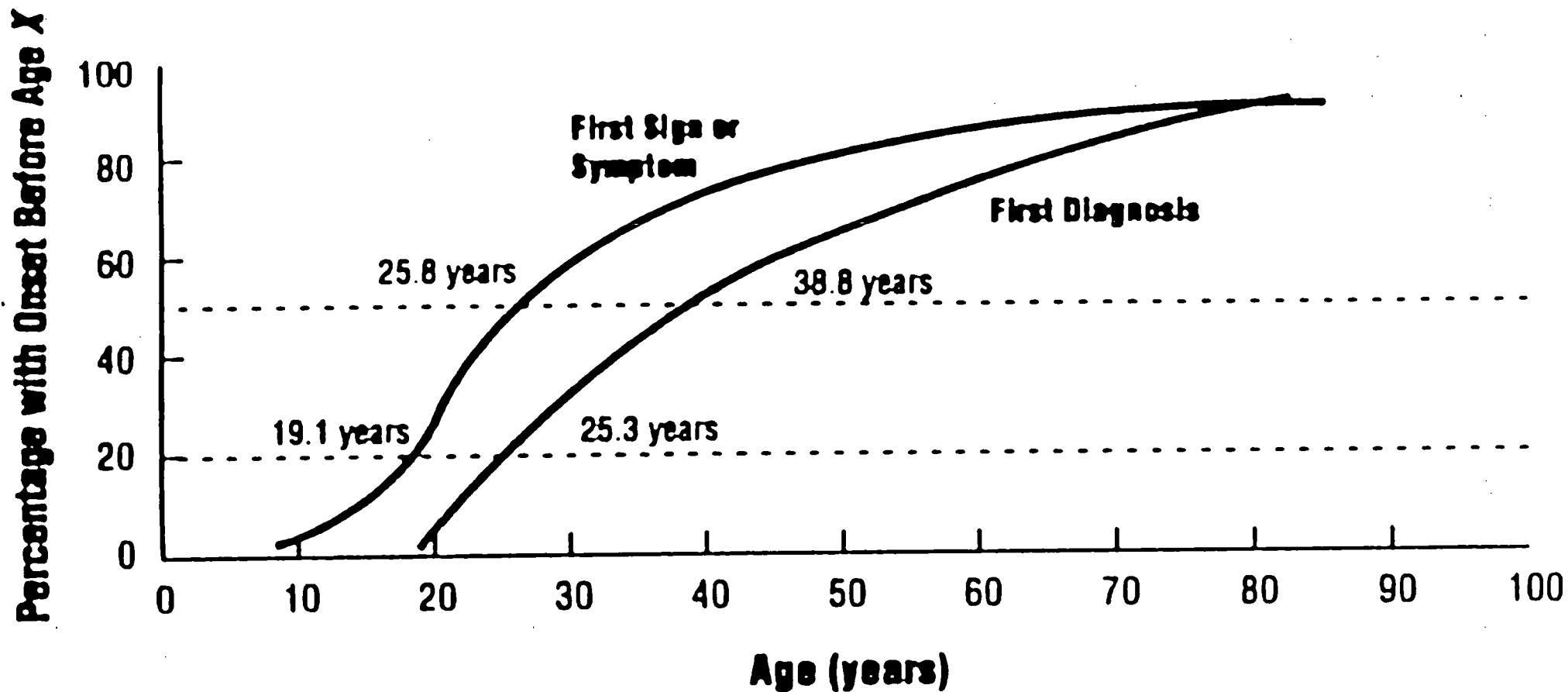


FIGURE 5.4 Age of onset of DIS/DSM-III Major Depressive Disorder. Population estimates are from 148 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

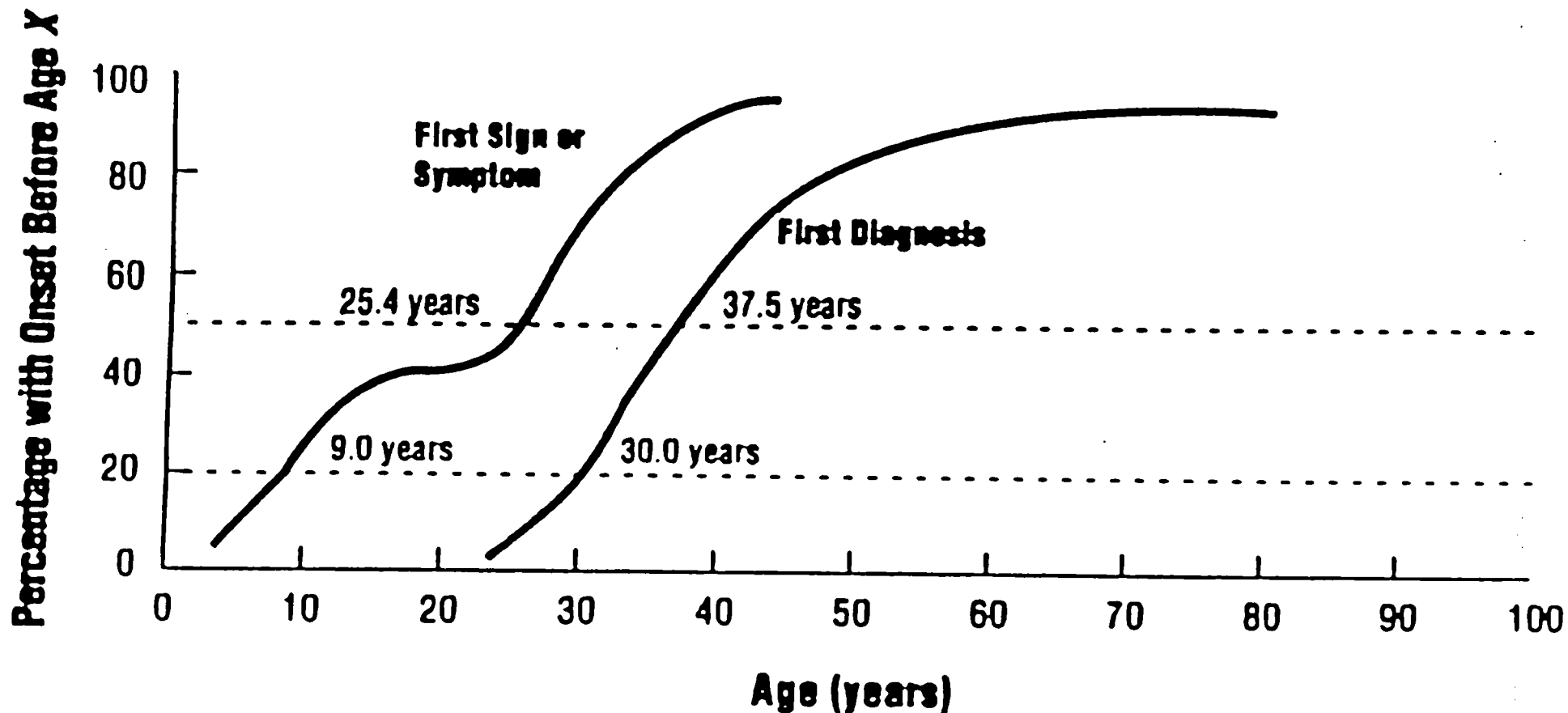


FIGURE 5.5 Age of onset of DIS/DSM-III Schizophrenia. Population estimates are from 35 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

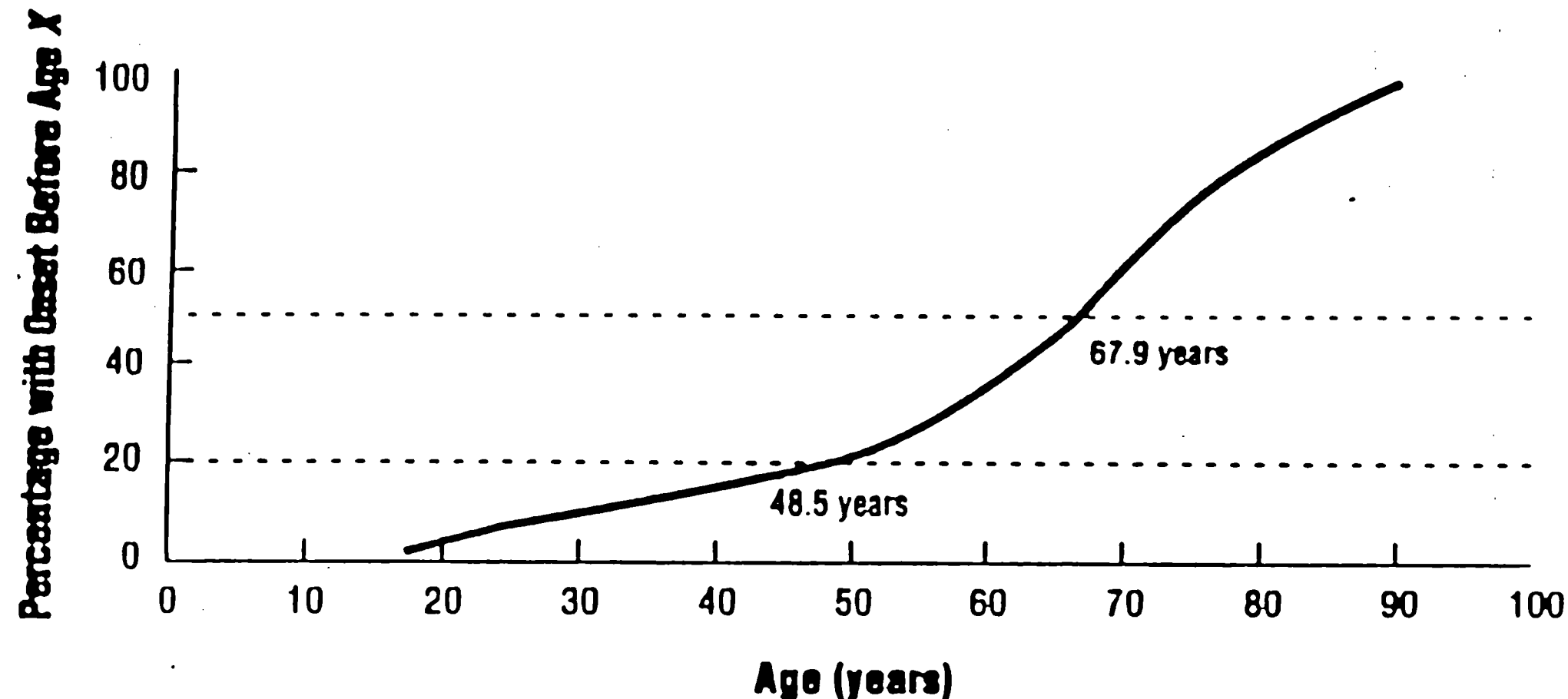


FIGURE 5.6 Age of onset of DIS/DSM-III Cognitive Impairment. Population estimates are from 187 new cases (with 20th and 50th percentiles marked). Source: NIMH Epidemiologic Catchment Area Study, Four Sites, 1978 to 1983.

TABLE 7.1 Illustrative Preventive Intervention Programs Using Randomized Controlled Trial Design

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
<i>Infants</i>				
Prenatal/Early Infancy Project	Selective/ N=394	Economic deprivation, maternal prenatal health and damaging behaviors, poor family management practices	Improved maternal diet and reduced smoking during pregnancy, fewer preterm deliveries, higher-birthweight babies, less child abuse	Olds, 1988, 1986
Tactile/Kinesthetic Stimulation	Selective/ N=40	Preterm delivery, low birthweight	Better physical and mental development of infants	Field, 1986
Early Intervention for Preterm Infants	Selective/ N=60	Teenage parenthood, low socioeconomic status, preterm delivery	Better parenting behaviors and attitudes of mothers, better cognitive competence, better physical development, better temperament of infants	Field, 1980
Infant Health and Development Program	Selective/ N=985	Low birthweight, poor family management practices, academic failure, early behavior problems	Better cognitive competence, fewer behavior problems	Ramey, 1990
Carolina Abecedarian Project	Selective/ N=107	Academic failure, lack of readiness for school, economic deprivation, low commitment to school	Better cognitive competence, lower rates of retention in grade in school	Horacek and Ramey, 1987
<i>Young Children</i>				
Houston Parent-Child Development Center	Selective/ N=700	Economic deprivation, academic failure, early behavior problems, poor family management practices	Better family management practices, fewer behavior problems	Johnson, 1991, 1990
Mother-Child Home Program of Verbal Interaction Project	Selective/ N=156	Academic failure, economic deprivation, poor family management practices, early behavior problems	Better family management practices, better cognitive competence	Levenstein, 1992, 1984
Parent-Child Interaction Training	Indicated/ N=105	Economic deprivation, early behavior problems, poor family management practices, maternal depressive symptoms	Lower rates of attention deficits and conduct problems	Strayhorn, 1991
High/Scope Preschool Curriculum Companion Study (including Distar)	Selective/ N=68	Academic failure, early behavior problems, economic deprivation	Better cognitive competence	Weikart and Schweinhart, 1992, 1986
Perry Preschool Program (using High/Scope curriculum)	Selective/ N=123	Academic failure, economic deprivation, early behavior problems, low commitment to school	Better cognitive competence, greater achievement and school completion, better vocational outcomes, fewer conduct problems and arrests	Weikart and Schweinhart, 1987, 1984
I Can Problem Solve: Interpersonal Cognitive Problem-Solving Program	Selective/ N=219 (N=60 in pilot study)	Economic deprivation, poor impulse control, early behavior problems	Better cognitive problem-solving skills, fewer behavior problems	Shure and Spivack, 1982, 1979
<i>Elementary-Age Children</i>				
Assertiveness Training Program (program 1)	Universal/ N=343	Early behavior problems, academic failure	Improved social assertiveness, improved academic performance	Rotheram, 1982

(continued)

TABLE 7.1 (Continued)

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
Assertiveness Training Program (program 2)	Indicated/ N=101	Early behavior problems, academic failure	More assertive behavior, better school achievement, fewer behavior problems	Rotheram, 1982
Children of Divorce Intervention Program	Selective/ N=75	Marital conflict and separation, early conduct problems	Lower anxiety, fewer learning problems, better adjustment	Pedro-Carroll and Cowen, 1989, 1986, 1985
Family Bereavement Program	Selective/ N=72	Child bereavement, poor family management practices, early behavior problems	Lower levels of symptoms of depression and conduct disorder	Sandler, 1992
Social Skills Training	Selective/ N=28	Peer rejection, early conduct problems	Less peer rejection, better interpersonal skills	Bierman, 1986
Social Relations Intervention Program	Indicated/ N=86	Early behavior problems (aggression), peer rejection, impulsivity	Less aggression, less peer rejection, more prosocial behavior	Lochman, in press
Montreal Longitudinal- Experimental Study	Indicated/ N=172	Poor family management practices, peer rejection, academic failure, early behavior problems, violence on television	Less aggressive behavior, less delinquent behavior, better school achievement	Tremblay, 1992, 1991
Community Epidemiological Preventive Intervention: Mastery Learning and Good Behavior Game	Universal/ N=2314	Academic failure, aggressive and antisocial behavior, concentration problems, depressive symptoms, shy behavior	Less aggressive and shy behavior, better cognitive competence—especially among those with early depressive symptoms	Kellam and Rebeck, 1992
Academic Tutoring and Social Skills Training	Selective/ N=40	Academic failure, peer rejection, early behavior problems, early depressive symptoms	Better cognitive competence, less peer rejection	Coie and Krehbiel, 1984
Seattle Social Development Project	Universal/ N=908	Poor family management practices, early behavior problems, low commitment to school, academic failure	Better family management practices and family bonding, greater attachment to school, lower rates of delinquency and drug use initiation	Hawkins and Catalano, 1988
<i>Adolescents</i>				
Changing Teaching Practices	Selective/ N=1166	Low commitment to education, academic failure, behavior problems	Greater attachment and commitment to school, lower rates of school suspension for misbehavior	Hawkins, 1988
Positive Youth Development Program	Universal/ N=282	Early drug use onset, favorable attitudes toward drugs, social influences to use	Better coping skills, better stress management strategies, better conflict resolution and impulse control, less excessive alcohol use	Caplan and Weissberg, 1992
Adolescent Alcohol Prevention Trial	Universal/ N=3011	Attitudes favorable to the use of drugs, social influences to use, early onset of drug use	Lower rates of tobacco, alcohol, and marijuana use, lower prevalence of problem alcohol use and drunkenness	Hansen and Graham, 1991
ALERT Drug Prevention	Universal/ N=6527	Social influences to use, early onset of drug use, attitudes favorable to the use of drugs	Lower rates of tobacco, alcohol, and marijuana use	Ellickson and Bell, 1990
Alcohol Education Project	Universal/ N=2536	Favorable attitudes toward alcohol consumption, early onset of alcohol use, association with alcohol-consuming friends, community norms favorable toward alcohol use	Less initiation of alcohol use, increased knowledge about alcohol, decreased use among those drinking prior to study	Perry et al., 1989

(continued)

TABLE 7.1 (Continued)

	Targeted Population Group/Sample Size When Project Began	Risk Factors Addressed	Outcomes (for total intervention group or subgroups)	Principal Investigator(s) and Year(s)
Midwestern Prevention Project	Universal/ N=5065	Social influences to use, early onset of drug use, attitudes favorable to the use of drugs	Lower rates of tobacco, alcohol, and marijuana use	Pentz, 1989
Behaviorally Based Preventive Intervention	Indicated/ N=80	Academic failure, early behavior problems, alienation from family, low commitment to school	Less conduct problems and delinquency	Bry, 1992
Intervention Campaign Against Bully-Victim Problems	Universal/ N=2400	Aggressive behavior, poor family management practices, favorable attitudes toward bullying/aggression	Less bullying, less delinquent behavior, more attachment to school	Olweus, 1991
<i>Adults</i>				
Prevention and Relationship Enhancement Program (PREP): An Empirically Based Preventive Intervention Program for Couples	Universal/ N=135	Couple relationship problems	Better marital adjustment, less divorce, less physical violence	Markman, 1992
University of Colorado Separation and Divorce Program	Selective/ N=153	Marital separation/divorce, anxiety, depression, childrearing problems, economic problems	Fewer symptoms of anxiety and depression, better vocational outcomes	Bloom and Hodges, 1985, 1982
Perceived Personal Control Preventive Intervention for a Cesarean Birth Population	Selective/ N=70	Caesarean delivery, depressive symptoms	Lower levels of postpartum depression, more rapid physical and psychological recovery	Tadmor and Brandes, 1988, 1984
Prenatal/Early Infancy Project	Selective/ N=394	Single parent status, school dropout, economic hardships, joblessness, subsequent pregnancy	Better vocational adjustment, fewer second pregnancies, better educational achievement	Olds, 1988
Caregiver Support Program for Coping with Occupational Stress	Selective/ N=247	Occupational stress, distress, anxiety, depression	Lower psychological distress, better job satisfaction	Heaney, 1992
JOBS Project for the Unemployed: Michigan Prevention Research Center	Selective/ N=928	Involuntary job loss, anxiety, depression, alcohol abuse, marital stress	Fewer depressive symptoms, higher pay, cost-effective outcomes	Vinokur, Price, Caplan, and van Ryn, 1992, 1991
San Francisco Depression Prevention Research Project: A Randomized Trial with Medical Outpatients	Selective/ N=150	Depressive symptoms, medical problems, low income, minority status in public primary care setting	Lower levels of depressive symptoms	Muñoz, 1993, 1990, 1987
Proyecto Bienestar: An Intervention for Preventing Depression in Hispanic Immigrant Women in the Community	Selective/ N=399	Low income, immigrant minority status, distress, depressive symptoms	Fewer depressive symptoms	Vega, 1990, 1987
Peer- and Professionally-Led Groups to Support Family Caregivers	Selective/ N=56	Caregiver burden, anxiety, depression	Lower levels of psychiatric symptoms, including anxiety and depression, better coping skills	Toseland, 1990, 1989
<i>Elderly</i>				
Widow-to-Widow: A Mutual Help Program for the Widowed	Selective/ N=162	Widowhood, bereavement, depression, anxiety, social isolation	Fewer depressive symptoms, less social withdrawal	Vachon, 1982, 1980, 1979

Communities That Care: An Overview

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There are three major phases of mobilizing a community to ensure the health and safety of its young people and institutionalize prevention.

Phase One—Introduce and Involve

- **Define the community**—What are the geographic boundaries and who are the people who live in your community? The answers to these questions are the first step in educating and involving your community. Your community may be defined as a neighborhood or a school catchment area.
- **Involve key leaders**—These are the influential individuals in your community's neighborhoods, schools, government, law enforcement, social services, juvenile justice system, medical and mental health, child and family services, religious organizations and cultural groups, and businesses. Their involvement is essential in providing credibility, accessing resources, removing barriers and supporting community prevention. Some of the key leaders may serve on the community prevention board or team. Others will appoint staff people to represent them.
- **Create a community-wide positive youth development board**—This group will be made up of concerned community members representing all the signifi-

cant areas affecting young people's lives: parents, educators, government officials, neighborhood residents, law enforcement officers, religious leaders, juvenile justice personnel, social service providers, health and mental health care providers, cultural leaders, business people, and young people themselves. A diverse group that is reflective of your community is critical to your success. This will be the working group for implementing positive developments to preventing health and safety problems of young people in your community.

- **Assess community readiness**—Is your community ready to use the existing research evidence to promote healthy development and prevention of problem behaviors? Are there groups who deny the existence of adolescent problem behaviors? Have they had any experience working collaboratively with other agencies and organizations? These obstacles must be identified and overcome before you proceed with your prevention efforts.

Introducing risk and protective factor-focused prevention means educating the community about 1) what research has shown puts young people at risk for adolescent health and behavior problems including delinquency and violence, 2) the protective factors and protective processes that research has shown buffers the effects

of risk exposure, promote resilience in children, and prevent health and behavior problems, and 3) tested strategies that reduce risk and enhance the protective factors of bonding and clear standards for behavior. The process of building community support is as important to your success as the programs you implement. Establishing broad-based community support weaves prevention into the very fabric of the community.

Phase Two—Conduct Community Assessments and Identify Gaps

- **Conduct community assessments**—In this phase you will be collecting archival and survey data on specific risk factors in your community, using the *Communities That Care* Data Workbook and other community resources. The data you collect will be analyzed and compared to state, county or national trends.

You will assess protective factors through the use of the *Communities That Care Youth Survey*. You will also assess existing community activities, programs, and services in order to identify resources that are already addressing risks and increasing protection for young people.

- **Identify community priorities and gaps to be addressed**—To build an effective strategy, you need both an accurate picture of your community's specific risk profile and information on resources and assets

already in place. Collecting data can help reduce turf battles by demonstrating which risks are a priority to address. It will also provide baseline data to help you evaluate the effects of your efforts.

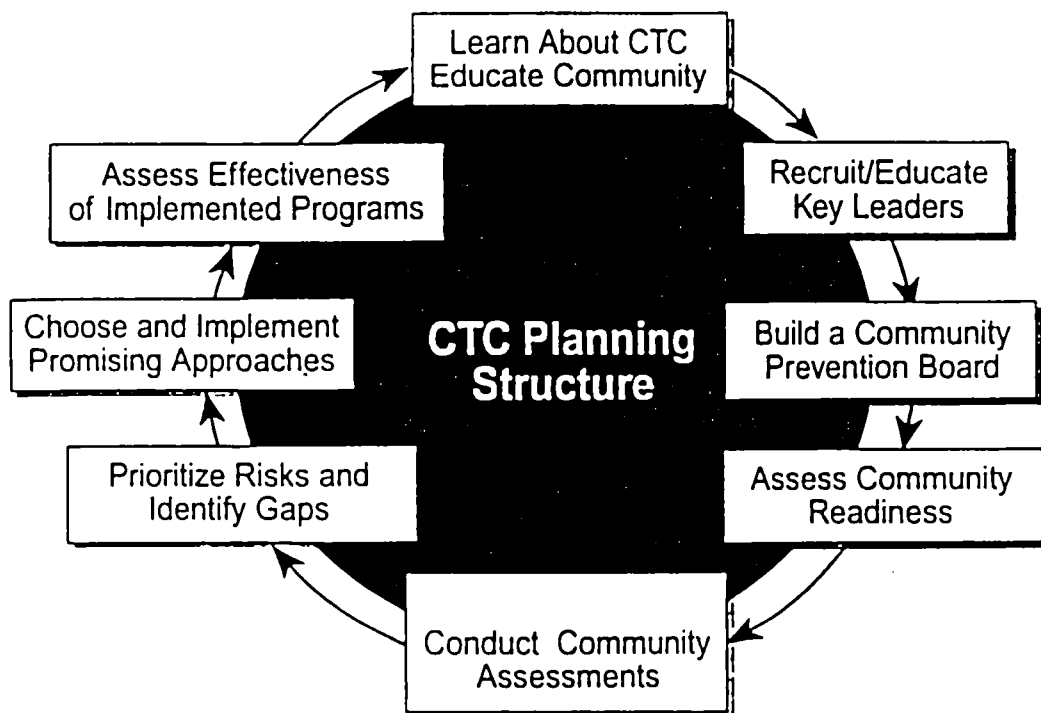
Phase Three—Plan and Implement Promising Responses

- **Learn about research-based strategies that address risk factors and increase protection**—A number of effective strategies involving families, schools, communities and individual/peers have been identified through will controlled research studies.
- **Develop a plan to address priority risks and existing gaps with promising approaches**—The next step is to develop and implement a plan of action to respond to the risks you prioritized as being critical for your community to address, and the gaps in effective resources that you found as a result of your community assessment.
- **Implement the strategy**—Subcommittees or task forces should be formed to oversee each approach you decide to implement. Task forces will continue to work with the entire board, as well as the key leaders, as new efforts are implemented.
- **Evaluate the effectiveness of the strategy**—To assure ongoing success, you will continue to collect information about risk and protective factors, resources and the effectiveness of the

prevention strategies you implement.

Institutionalizing prevention is a long-term process for communities. Evaluation and the resulting strategy enhancements and developments will continue indefinitely. Remember that you are not alone in this process. Many other members of your community are concerned about the healthy development of young people.

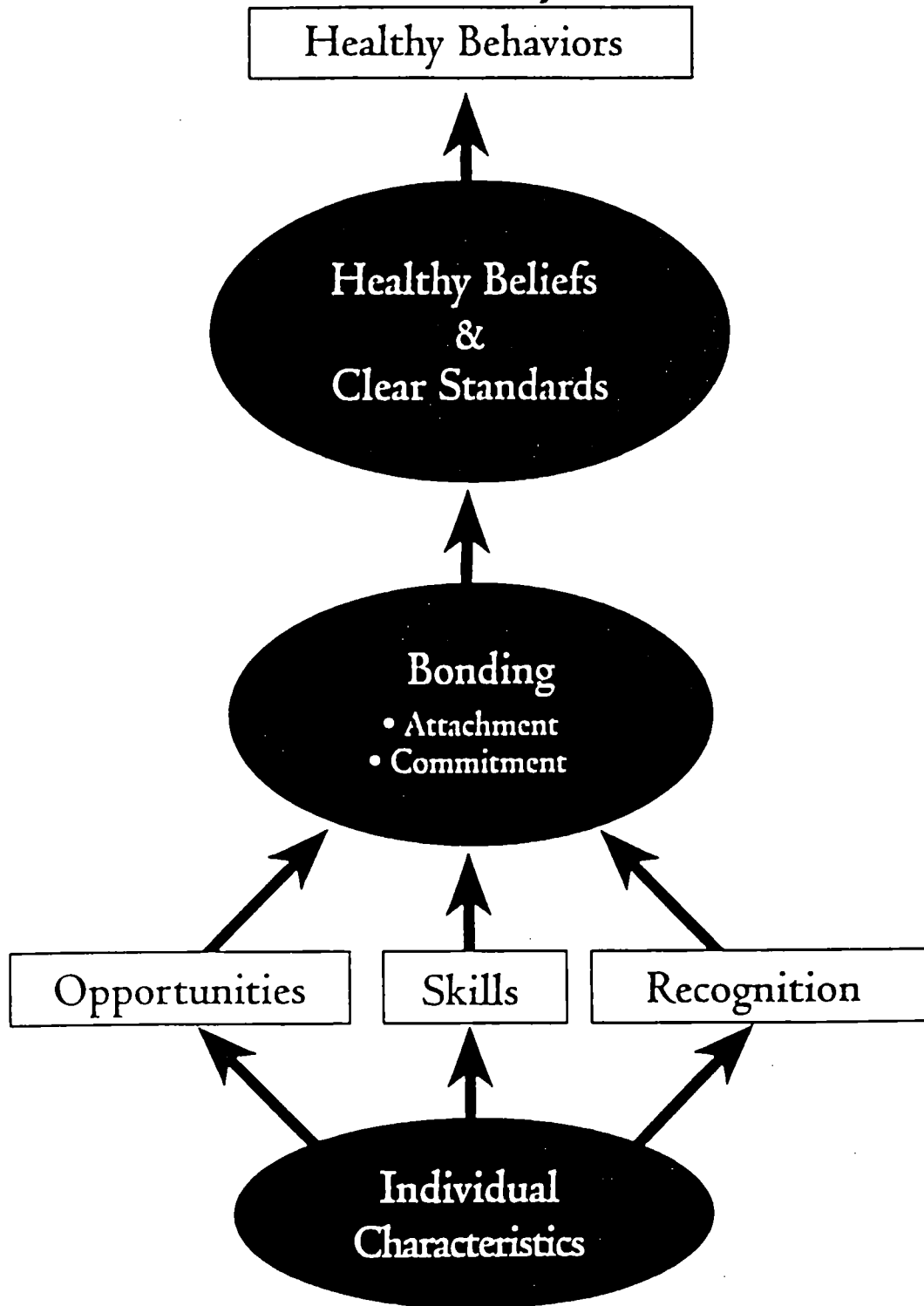
Your task is to harness the energy and commitment of all those who care about young people and channel that commitment into a risk and protective factor-focused prevention approach. By doing so, you can move toward achieving the vision of your community as a healthy, nurturing, safe place for all children to live.



Adolescent Problem Behaviors

Risk Factors	Substance Abuse	Delinquency	Teen Pregnancy	School Drop-Out	Violence
Community					
Availability of Drugs	✓				
Availability of Firearms		✓			✓
Community Laws and Norms Favorable Toward Drug Use, Firearms, and Crime	✓	✓			✓
Media Portrayals of Violence					✓
Transitions and Mobility	✓	✓		✓	
Low Neighborhood Attachment and Community Disorganization	✓	✓			✓
Extreme Economic Deprivation	✓	✓	✓	✓	✓
Family					
Family History of the Problem Behavior	✓	✓	✓	✓	
Family Management Problems	✓	✓	✓	✓	✓
Family Conflict	✓	✓	✓	✓	✓
Favorable Parental Attitudes and Involvement in the Problem Behavior	✓	✓			✓
School					
Early and Persistent Antisocial Behavior	✓	✓	✓	✓	✓
Academic Failure Beginning in Late Elementary School	✓	✓	✓	✓	✓
Lack of Commitment to School	✓	✓	✓	✓	
Individual/Peer					
Alienation and Rebelliousness	✓	✓		✓	
Friends Who Engage in the Problem Behavior	✓	✓	✓	✓	✓
Favorable Attitudes Toward the Problem Behavior	✓	✓	✓	✓	
Early Initiation of the Problem Behavior	✓	✓	✓	✓	✓
Constitutional Factors	✓	✓			✓

The Social Development Strategy



Community Risk and Protective Factors Addressed by Promising Approaches

	Risk Factor Addressed	Program Strategy	Protective Factors					Developmental Period
			Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	
Community Domain	Availability of Drugs	Community/School Policies	✓	✓	✓	✓	✓	all
	Availability of Firearms	Community/School Policies	✓					all
	Community Laws and Norms Favorable Toward Drug Use, Firearms, and Crime	Classroom Curricula for Social Competence	✓		✓	✓	✓	6-14
		Community Mobilization	✓	✓	✓	✓	✓	all
		Community/School Policies	✓	✓	✓	✓	✓	all
		Policing Strategies	✓					all
	Media Portrayals of Violence							
	Transitions and Mobility	Organizational Change in Schools	✓	✓	✓	✓	✓	6-18
	Low Neighborhood Attachment and Community Disorganization	Community Mobilization	✓	✓	✓	✓	✓	all
		Policing Strategies	✓					all
		Organizational Change in Schools	✓	✓	✓	✓	✓	all
		Classroom Curricula for Social Competence	✓		✓	✓	✓	11-14
	Extreme Economic Deprivation	Prenatal and Infancy Programs	✓	✓	✓	✓	✓	prenatal-3
		Youth Employment with Education	✓	✓				all

Family Risk and Protective Factors Addressed by Promising Approaches

	Risk Factor Addressed	Program Strategy	Protective Factors					Developmental Period
			Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	
Family Domain	Family History of the Problem Behavior	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
	Family Management Problems	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Early Childhood Education	✓	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Family Therapy	✓	✓	✓	✓	✓	6-14
	Family Conflict	Marital Therapy	✓	✓	✓	✓	✓	prenatal
		Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Family Therapy	✓	✓	✓	✓	✓	6-14
	Favorable Parental Attitudes and Involvement in the Problem Behavior	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Parent Training	✓	✓	✓	✓	✓	prenatal-14
		Community/School Policies	✓	✓	✓	✓	✓	all

School Related Risk and Protective Factors Addressed by Promising Approaches

	Risk Factor Addressed	Program Strategy	Protective Factors					Developmental Period
			Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	
School Domain	Early and Persistent Antisocial Behavior	Early Childhood Education	✓	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	✓	prenatal-10
		Family Therapy	✓	✓	✓	✓	✓	6-18
		Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	✓	6-18
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	✓	6-14
		School Behavior Management Strategies	✓		✓	✓	✓	6-14
		Afterschool Recreation Programs	✓	✓	✓	✓	✓	6-10
		Mentoring with Contingent Reinforcement	✓		✓	✓	✓	11-18
	Academic Failure Beginning in Late Elementary School	Prenatal/Infancy Programs	✓	✓	✓	✓	✓	prenatal-2
		Early Childhood Education	✓	✓	✓	✓	✓	3-5
		Parent Training	✓	✓	✓	✓	✓	prenatal-10
		Organizational Change in Schools	✓	✓	✓	✓	✓	6-18

School Related Risk and Protective Factors Addressed by Promising Approaches

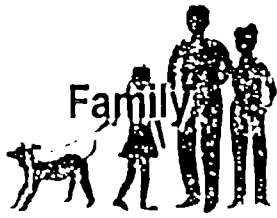
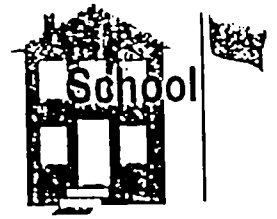
			Protective Factors					
School Domain	Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	Developmental Period
	Academic Failure (continued)	Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	✓	6-18
		Classroom Curricula for Social Competence Promotion	✓	✓	✓	✓	✓	6-14
		School Behavior Management Strategies	✓		✓	✓	✓	6-14
		Youth Employment with Education	✓	✓	✓	✓	✓	15-21
	Lack of Commitment to School	Early Childhood Education	✓	✓	✓	✓	✓	3-5
		Organizational Change in Schools	✓	✓	✓	✓	✓	6-18
		Classroom Organization, Management and Instructional Strategies	✓	✓	✓	✓	✓	6-18
		School Behavior Management Strategies	✓		✓		✓	6-14
		Mentoring with Contingent Reinforcement	✓		✓		✓	11-18
Youth Employment with Education		✓	✓	✓		✓	15-21	

Individual/Peer Risk and Protective Factors Addressed by Promising Approaches

		Protective Factors							
Individual/Peer Domain	Risk Factor Addressed	Program Strategy	Healthy Beliefs & Clear Standards	Bonding	Opport.	Skills	Recog.	Developmental Period	
	Rebelliousness	Family Therapy	✓	✓					6-14
		Classroom Curricula for Social Competence Promotion	✓	✓					6-14
		School Behavior Management Strategies	✓						6-14
		Afterschool Recreation	✓	✓					6-10
		Mentoring with Contingent Reinforcement	✓						11-18
		Youth Employment with Education	✓	✓					15-18
	Friends Who Engage in the Problem Behavior	Parent Training	✓	✓					6-14
		Classroom Curricula for Social Competence Promotion	✓	✓					6-14
		Afterschool Recreation	✓	✓					6-14
		Mentoring with Contingent Reinforcement	✓						11-18
	Favorable Attitudes Toward the Problem Behavior	Classroom Curricula for Social Competence Promotion	✓	✓					6-14
		Community/School Policies							
	Early Initiation of the Problem Behavior	Parent Training	✓	✓					6-14
		Classroom Organization Management and Instructional Strategy	✓	✓					6-10
		Classroom Curricula for Social Competence	✓	✓					6-14
		Community/School Policies	✓						all
	Constitutional Factors	Prenatal/Infancy Programs	✓	✓					prenatal-2

Addressing Risks and Protection With Effective Strategies

Risk Factor: Early and Persistent Antisocial Behavior

Domain	Program Strategy	Healthy Beliefs	Bonding
 Family	Early Childhood Education	✓	✓
	Parent Training	✓	✓
 School	Classroom Organization, Management and Instructional Strategies	✓	✓
	School Behavior Management Strategies	✓	
 Individual/Peer	Afterschool Recreation Programs	✓	✓

Addressing Risks and Protection With Effective Strategies

Risk Factor: Academic Failure Beginning in Late Elementary School

Domain	Program Strategy	Healthy Beliefs	Bonding
Family	Early Childhood Education	✓	✓
	Parent Training	✓	✓
School	Organizational Change in Schools	✓	✓
	Classroom Curricula for Social Competence Promotion	✓	✓
Individual/Peer	Youth Employment With Education	✓	✓

RESEARCH**PREVENTING SCHOOL FAILURE, DRUG USE, AND DELINQUENCY AMONG LOW-INCOME CHILDREN: Long-Term Intervention in Elementary Schools**

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A six-year, school-based prevention program, which modified classroom teacher practices, offered parent training, and provided child social skills training, was evaluated for its effects on school failure, drug abuse, and delinquency among low-income urban children. Compared to a low-income control group, children in the intervention group showed enhanced school commitment and class participation. The girls in the group also evidenced lower rates of substance use initiation, while the boys exhibited increased social and school work skills.

Poverty places children at risk for school failure (Goodlad, 1984) and school dropout (Wittenberg, 1988), for serious delinquency and crime (Blumstein, Cohen, Roth, & Visher, 1986; Elliott, Huizinga, & Menard, 1989), and for alcoholism and other drug problems (Robins & Ratcliff, 1979). The problems facing children in poverty are particularly pressing now that one-fourth of America's students in grades one through 12 live in poverty, and they will become more pressing by the end of the decade when it is estimated that one-third of students in American schools will live in poverty (Jennings, 1988). Evidence suggests that American society is failing to

provide adequate schooling or skills to low-income students. Over half of poor students do not graduate from high school (Bastian, Fruchter, Gittell, Greer, & Haskins, 1985).

Significant federal and state investments have been made in programs aimed at counteracting the educational disadvantage of poverty (Jennings, 1988; Kober, 1989). Head Start, for example, costs about \$1.2 billion annually in federal funds, although it reaches only 20% of poor preschool children each year (McGeary, 1990). Chapter 1 of the Elementary and Secondary School Improvement Act supports special compensatory services for low-achieving stu-

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dents in schools with high concentrations of poor children and, although there are no recent data on the proportion of recipients who are poor (McGeary, 1990), these services have been estimated to reach about 25% of all school-aged children at some point during their school careers (Kennedy, Burman, & Demaline, 1986). The Hawkins Stafford Elementary and Secondary School Improvement Amendments of 1988 (PL 100297) authorized the expansion of Chapter 1 services so that all eligible children would be served by 1993; they raised spending ceilings, concentrated more money on the poorest schools, strengthened parental involvement, and added a number of new service programs (Kober, 1989; Riddle, 1989).

The success of Chapter 1 programs has been mixed, whether offered through pull-out (removing children from their regular classrooms) or in-class programs (Archambault, 1989; Slavin, 1989), and several limitations have been identified. For one, the focus of Chapter 1 interventions is strictly on the individual when, in fact, other factors may contribute to academic underachievement. Another limitation is that, although Chapter 1 programs may accurately target problems of academic underachievement, they commonly do so only after a child has been identified and assessed as having a problem that warrants special services. Support services are generally provided only after some history of underachievement and consist of strictly remedial educational services. This lack of a preventive aspect may make the problem more difficult to counteract.

Numerous studies have identified relationships among types of problem behavior. School failure, dropout, and misbehavior have been found to be closely related (Gold & Mann, 1984). Similarly, school failure and delinquency (Gottfredson, 1981), as well as substance abuse and delinquency, have been correlated (Blumstein, Cohen, Roth, & Visser, 1986; Donovan & Jessor, 1985). Substance abuse has also been

linked to failure to graduate from high school (Weng, Newcomb, & Benler, 1988). Whether these types of behavior are part of a "deviance syndrome" (Donovan & Jessor, 1985; Jessor & Jessor, 1977) or represent more distinct behavior patterns (Gillmore, Hawkins, Catalano, Day, Moore, & Abbott, 1991), studies of overlap in such behavior have found correlations among school failure, school misbehavior, dropout, delinquency, and substance abuse. The existence of interrelationships among types of problem behavior suggests promise for preventive interventions that seek to reduce shared risk factors for adolescent problem behavior (Hawkins, Catalano, & Miller, 1992).

It seems probable that a preventive approach delivered to schools with a high proportion of low-income children might be more effective in reaching and counteracting the effects of poverty. Such an approach would seek to ensure that those already routinely involved in the education and socialization of children—teachers and adult caregivers—used effective teaching and family management skills to prevent learning and behavioral problems.

Considerable advances have been made over the past two decades in effective teaching (Brophy & Good, 1986; Slavin, 1989) and parenting skills (Bank, Patterson, & Reid, 1987). There is evidence that classroom interventions can reduce risk among children without the limitations of pull-out programs (Gottfredson, 1990). More recently, the idea of intervening simultaneously in multiple social units to reduce risks for academic failure and problem behavior has been supported (Comer, 1988; Hawkins, Von Cleve, & Catalano, 1991; Slavin, Madden, Karweit, Livermon, & Dolan, 1990). Although there are differences in specific approaches, several programs have begun to incorporate multiple interventions that attempt to influence individuals, families, and schools in a positive way. It is important to determine the extent to which strategies combining teacher and

parent training can reduce academic failure, drug abuse, and crime among children of poverty.

SEATTLE SOCIAL DEVELOPMENT PROJECT

The Seattle Social Development Project (SSDP) (Hawkins, Catalano, Jones, & Fine, 1987) is a long-term intervention that utilizes a risk-reduction strategy based on the premise that academic failure, delinquency, and drug abuse can be prevented by reducing, eliminating, or mitigating the effects of precursors or risk factors for these problems.

Theoretical Basis

The theory that guides the SSDP, the social development model (Catalano & Hawkins, *in press*), expands upon Hirschi's (1969) social control theory, which hypothesized that delinquent behavior was prevented by high levels of social bonding to conventional others. The expansion consists in specifying the processes of social learning (Akers, Krohn, Larza-Kaduce, & Radosevich, 1979; Bandura, 1977) that are thought to determine children's levels of social bonding. Strong bonds to family and school are thought to be protective factors against drug abuse and delinquency; protective factors are influences or processes that modify, ameliorate, or alter response to risk exposure (Garmezy, 1985; Rutter, 1985; Werner, 1989). The Seattle project sought to reduce or eliminate the effects of exposure to risk by developing preventive interventions that primarily targeted the risk factors of academic failure, low commitment to school, early conduct disorders, family management problems, and involvement with antisocial others. Each intervention was designed to increase protective factors while reducing risk.

Social Development Model

In the social development model, an individual's level of bonding to a social unit is determined by the amount of opportunity for involvement available in that social

unit, by the skills the individual applies in participating in the social unit, and by reinforcements provided by the unit for the individual's behavior (Catalano & Hawkins, *in press*; Hawkins, Catalano, Morrison *et al.*, 1992; Hawkins & Weis, 1985). The model also accounts for the importance of antisocial peers in influencing antisocial behavior (Elliott, Huizinga, & Ageton, 1985; Henggeler, 1989), since opportunities for involvement in such behavior, interactions with others involved in antisocial behavior, and perceived reinforcements for such behavior are hypothesized to increase the likelihood of antisocial behavior.

The social development model proposes that positive social bonds to school and family, and belief in family and school values, develop when students have opportunities for active involvement in the classroom and family, when classroom and family experiences lead to skills for successful participation, and when the classroom and family environment provide consistent reinforcement for productive involvement (Hawkins, Doueck, & Lishner, 1988; Hawkins & Weis, 1985). Teaching and family practices that maximize these conditions should promote successful experiences, enhance social bonding, and, when paired with risk reduction activity, lessen involvement in such problem behavior as academic failure, delinquency, and substance use among students.

INTERVENTION DESIGN

The SSDP is following a group of multi-ethnic urban students who entered the first grade in eight Seattle public schools in 1981. At that time, two schools were assigned to be full-control or full-experimental intervention sites. In the remaining six schools, entering first grade students were assigned to intervention and control classrooms randomly (Hawkins, Von Cleve, & Catalano, 1991). During grades one through four, newly entering students to project schools were assigned randomly to experimental and control classrooms and

added to the panel. In 1984, when the initial subjects entered the fifth grade, the panel was expanded to include all fifth-grade students in 18 Seattle elementary schools.* This modification led to the recapture of some intervention students and the addition of more control children to the study, resulting in a quasi-experimental design.

The project tested an intervention aimed at reducing the primary risk factors of school failure, early conduct disorders, family management problems, and involvement with antisocial others by combining modified teaching practices in mainstream classrooms, child social skills training, and developmentally adjusted parent training. The strategies were designed to enhance opportunities, skills, and reinforcements for children, both in the classroom and in family settings. It was hypothesized that there would be positive effects on student attitudes, achievement, and behavior.

Classroom Intervention

Teachers of children in the intervention group were trained in instructional methods with three major components: proactive classroom management, interactive teaching, and cooperative learning (Hawkins, Doueck, & Lishner, 1988; Hawkins & Lam, 1987). Project staff and school principals were trained to observe intervention teachers in the classroom and to provide feedback on use of the project teaching techniques. Intervention teachers were observed and given feedback approximately once every three weeks. First-grade teachers were also trained to provide cognitive problem-solving instruction using a curriculum developed by Shure and Spivack (1988).

Teachers of control students did not receive training in instructional skills from the project. However, they were observed for a series of four class periods on different days in the fall and spring each year to document their teaching practices.

Management. Proactive classroom management seeks to establish an environment conducive to learning, promotion of appropriate student behavior, and minimization of disruption in classroom activities. Intervention teachers were trained to establish classroom routines at the beginning of the year to create a consistent pattern of expectations. Teachers were taught to give clear and explicit instructions for student behavior and to recognize and reward attempts to comply. Teachers were also taught methods for keeping minor classroom disruptions from interrupting instruction and decreasing opportunities for learning. An integral part of proactive management is the frequent, appropriate use of encouragement and praise, thus identifying desirable behavior and reinforcing it (Brophy, 1987; Brophy & Good, 1986; Cummings, 1983; Emmer & Everston, 1980; Martin, 1977).

Interactive teaching. Intervention teachers were also trained to use interactive teaching methods based on the premise that, under appropriate instructional conditions, virtually all students can develop the skills necessary to succeed in the classroom; it has resulted in improved learning in a variety of classroom situations. It requires mastery of specified learning objectives before proceeding to more advanced work, and grades are determined by demonstrating mastery with improvement over past performance. Interactive teaching also emphasizes frequent monitoring of students to assess their comprehension of material as it is presented (Block, 1971; Bloom, 1976; Brophy, 1987; Brophy & Good, 1986; Cummings, Barber, & Cuervo, 1982; Hawkins & Lam, 1987; Peterson, 1972; Stallings, 1980). The components of interactive teaching used in this project were assessment, mental set, objectives, input, modeling, checking for understanding, and remediation.

Cooperative learning. Intervention teachers were also trained to use cooperative

*A complete description of assignment to intervention or control condition is available from the second author.

learning methods involving small groups of students with different abilities and backgrounds as learning partners. Students work in teams to master curriculum material and receive recognition as a team for their group's academic performance. Students are dependent on each another for positive rewards, and team scores are based on each student's academic improvement over past performance, thus allowing each student to contribute to the team's overall achievement. The cooperative learning techniques used in this experiment were Student Teams Achievement Divisions and Teams-Games-Tournaments (Slavin, 1989, 1991). Research has shown that cooperative learning methods that incorporate team rewards, individual accountability, and equal opportunity for success are more effective than traditional instructional methods in improving student achievement, attitudes toward school, and mutual concern among students across racial groups (Slavin, 1991; Slavin & Madden, 1989).

Teacher training procedures. Teacher training was sequenced across the academic year, beginning in August with two days of proactive classroom management training and introduction to interactive teaching before school began, interactive teaching training in October, and training in cooperative learning methods in February (Hawkins, Catalano, Morrison et al., 1992). This schedule of training was designed to allow sufficient guided and independent practice in each method before the introduction of new methods. In addition, introduction of cooperative learning in midwinter appeared to generate an atmosphere of change and innovation in the classroom that helped keep the focus on learning during an educational season often described as the winter doldrums.

Goals. These classroom interventions targeted academic failure and early conduct disorders. Proactive teaching methods were expected to provide increased opportunities and reinforcement for classroom involvement, while interactive teaching and

cooperative learning were expected to promote opportunities, skills, and reinforcement for classroom involvement. This set of teaching practices was hypothesized to enhance the protective factors of attachment and commitment to school.

Child Intervention

Children in the intervention group received cognitive and social skills training in the first and sixth grades. The first-grade training program, Interpersonal Cognitive Problem Solving (Shure & Spivack, 1980, 1988), teaches communication, decision-making, negotiation, and conflict resolution skills. It seeks to increase problem-solving ability as a means of improving social adjustment (Shure & Spivack, 1980). First-grade teachers were instructed in the use of this curriculum to teach children how to think through alternative solutions to problems.

Sixth-grade students in the intervention group received four hours of refusal skills training that taught them to recognize trouble, to identify the legal name of the trouble, to name a number of consequences for engaging in the trouble, and to generate and suggest positive alternatives for students to stay out of trouble while retaining friends.

The child skills training component targeted the risk factors of early conduct disorders, peer rejection, and involvement with antisocial others. This intervention sought to develop skills for conventional involvement so that children could accomplish their goals without resorting to problem behavior.

Parent Intervention

Parent training classes appropriate to the developmental level of their children were offered on a voluntary basis during first, second, third, fifth, and sixth grades. Professional project staff of mixed ethnicity provided parenting workshops in collaboration with local school and parent councils.

Child behavior management. The first component, "Catch 'Em Being Good" (Hawkins et al., 1987), is a seven-session parent training curriculum that was offered to parents of first- and second-grade intervention students. The curriculum teaches parents how to observe and pinpoint desirable and undesirable behavior in their children, teach expectations for behavior, and provide positive reinforcement for desired behavior and moderately negative consequences for undesired behavior in a consistent and contingent fashion (Hawkins et al., 1987).

Academic support. The second component of parent training was an academic support curriculum, "How to Help Your Child Succeed in School" (Hawkins et al., 1987), offered in the spring of the children's second grade and again in the third grade. This four-session curriculum is designed to improve positive parent-child communication and involvement by teaching parents how to help their children develop reading and math skills (Hawkins et al., 1987). Analyses of the project at the beginning of fifth grade showed positive effects on bonding to family (Hawkins, Catalano, Morrison et al., 1992).

During the first three years of the project, parents of 19 low-income intervention students attended at least one of the parenting classes. The mean number of sessions of Catch 'Em Being Good attended was 3.2 (45%); the mean number for How to Help Your Child Succeed in School was 3.4 (85%).

Antisocial prevention. In the fifth and sixth grades, parents of intervention students were offered training in "Preparing For the Drug (Free) Years" (Hawkins, Catalano, Brown et al., 1988; Hawkins, Catalano, & Kent, 1991), a five-session risk-focused skills training curriculum. The goals were to a) establish a family position or policy on drugs on which all members could agree; b) teach parents to train their children in social influence resistance skills so they could stay out of trouble while maintaining peer friendships; c) teach par-

ents self-control skills to reduce family conflict; and d) create opportunities for children to contribute and learn through active involvement in new familial roles as they approached adolescence. Parents of ten low-income students attended the Preparing for the Drug (Free) Years classes. The mean number of sessions attended for both grades was 2.7 (54%).

Goals. These parent training interventions focused on reducing the risk factors of poor and inconsistent family management, family conflict, academic failure and low commitment to school, norms favorable to substance use, and association with antisocial peers. The classes sought to increase the level of bonding to the family and thus enhance protective mechanisms.

Parents of students in the control group did not receive training in parenting skills from the project but were surveyed to document their parenting practices.

This article investigates the effects of the SSDP on the basis of a set of hypothesized intervening variables and on the outcome measures of achievement, drug use, and delinquency for low-income urban children at the end of grade six.

METHOD

Data Collection

Data were collected from students during the fall of 1985, when normally progressing students entered fifth grade, and in the spring of 1987 when they completed sixth grade. A self-report survey administered to all study participants measured perceived opportunities, skills, and reinforcements in the classroom, peer interactions, and problem behavior, including drug use and delinquency. Student questionnaires were administered in classrooms. Project personnel read each question and its response categories aloud and instructed students to record their answers. Students were assured of confidentiality and monitored to ensure independent response. In addition, teachers completed the Teacher Child Behavior Checklist (Achenbach & Edelbrock,

1986) for each student in the spring of sixth grade.

Treatment status. The independent measure was treatment status. For the analyses, low-income students were divided into two conditions: control group (students who received no intervention in grades one through six) and full intervention group (students exposed to at least one semester of the combined intervention in grades one through four and to at least one semester of intervention in fifth or sixth grades). Students enrolled in either intervention or control classrooms for less than a semester prior to the fifth grade or during the fifth and sixth grades were classified as not having been fully exposed during these periods and excluded from the analyses.

Subjects

High-risk subsample. A high-risk subsample based on socioeconomic status was drawn from the larger general population sample. It included all low-income students (defined as those eligible for inclusion in the National School Lunch/School Breakfast Program in the fall of fifth grade) from the control and full intervention groups. At the beginning of fifth grade, this yielded a subsample of 177 (42%) low-income subjects (54% female, 46% male) from the fifth-grade sample of 424 subjects in the intervention and control conditions. Of this subsample, 102 were in the control group and 75 were in the intervention group. Ethnic differences in the sample were assessed by comparing proportions of European-Americans, African-Americans, Asian-Americans, and Other. No significant ethnic differences between the groups were observed in either the male or the female sample.

At the end of the sixth grade, 60% ($N=106$) of the fifth-grade low-income subsample completed sixth-grade surveys. Of these, 54% ($N=57$) were female and 46% ($N=49$) were male, yielding an intervention group of 44 (27 female, 17 male) and a control group of 62 (30 female, 32

male). Twenty-five (24%) were European-American, 44 (42%) African-American, 27 (25%) Asian-American, seven (6%) Native American and three (3%) identified as Other. Once again, no significant ethnic differences were found between the conditions in either the male or female sample.

General population sample. At the end of the sixth grade, of those in the general population sample, 314 (52%) were male and 294 (48%) were female; 284 (49%) were European-American, 129 (22%) were African-American, 111 (19%) were Asian-American, 31 (6%) were Native American and 21 (4%) were identified as Other. No significant gender difference was evident between the low-income and the general population samples. However, there was a significant ethnic difference between students in the low-income subsample and those in the general population sample ($\chi^2=42.33$, $p<.05$). Students in the former were less likely to be European-American (24% vs. 55%), and more likely to be African-American (42%) or Asian-American (24%) than students in the general population sample (19% and 22%, respectively).

Attrition. To test for attrition biases, an attrition analysis (ANOVA) on fifth-grade measures compared children for whom sixth-grade data were available to those who had been lost from the sixth-grade data collection. As in previous longitudinal studies (Brook, Cohen, & Gordon, 1983), the students for whom data were not available in the sixth grade were found to be less conventional than those who were followed successfully. Among boys, lost subjects reported less attachment to conventional peers ($p<.05$) as well as more suspensions from school ($p<.05$) in the fall of the fifth grade. Among girls, lost subjects were less committed to school ($p<.05$) in the fall of the fifth grade. There were no other significant differences between the two groups at the beginning of fifth grade. Although these findings may limit the external generalizability of the outcomes to low-income youth who do not move, the

internal validity of the study was not compromised since attrition reflected the departure of low-income students from participating schools and is not, with one exception, confounded with intervention. Attrition analyses by condition found no evidence of differential attrition by condition in the male sample and a single instance of differential attrition in the female sample as discussed in the results section.

Measures

Teacher instructional practices. Classroom instructional practices of both intervention and control teachers were assessed annually through use of a structured observational recording system (Kerr, Kent, & Lam, 1985). The observations were then transformed into summary scores as an implementation check of teaching practices in classrooms. As predicted, intervention teachers utilized intervention teaching strategies significantly more than did control teachers in five of the six years of the study. These findings support the use of the treatment classification measure in this study by demonstrating that the project teaching practices varied significantly between intervention and control conditions.

*Construct measures.** The social development model constructs and outcome measures were composed of conceptually grouped items, as listed in the first column of TABLE 1. Reliability for all composite indexes was estimated separately for boys and girls, using Cronbach's alpha. Estimates for almost all the items fell within the .92 to .60 range for both genders. However, they were found to be in the low range for boys on the items of substance abuse refusal skills and bonding to the father (.35 and .30 respectively).

Analysis

Analyses were conducted separately for low-income boys and girls to identify sixth-

grade mean differences on intervening and outcome measures between students in the control and full intervention conditions. Except as noted, mean differences were evaluated using independent group *t*-tests.

Analyses were conducted separately for females and males in light of evidence that involvement in certain problem behavior such as delinquency is greater for males than for females (Elliott et al., 1989; Farrington, 1987). Such analyses allowed investigation of the possibility of different patterns of intervention effects for low-income males and females.

Intervention effects on each of the model constructs hypothesized as affected by the intervention were examined separately for several reasons. First, the intervention was theory-driven and it was thus important to ascertain the effects of the intervention on each potentially affected construct in the model. Second, analyses revealed relatively low correlations between constructs and, even within constructs, across scales that measured each of them in different domains. For example, among low-income boys, the correlation between attachment to school and attachment to the father was .06. The use of multivariate analytic techniques is less appropriate, however, when inter-item correlations are small (Stevens, 1986). Since it is difficult to affect change in children who are experiencing a number of risk factors, each comparison was tested at the .05 level. While this approach increases the experiment-wide alpha level, its ability to detect intervention effects is greater.

RESULTS

At the end of sixth grade, a number of statistically significant differences were found between the high-risk (low-income) intervention and control groups in both female and male samples, as can be seen in TABLE 1.

*A complete description of the Seattle Development Item and Scale Dictionary for the Fifth, Sixth, and Seventh Grades is available from the second author.

Table 1
INTERVENTION AND OUTCOME MEASURES: LOW-INCOME GIRLS AND BOYS

VARIABLE	GIRLS						BOYS					
	INTERVENTION			CONTROL			INTERVENTION			CONTROL		
	M	SD	N	M	SD	N	M	SD	N	M	SD	N
Conventional												
Class	3.44	0.58	27	3.13	0.86	30	3.00	0.83	16	3.03	0.82	32
Peer	3.55	0.74	26	3.33	0.97	30	3.32	0.75	16	3.25	0.91	30
Outside classroom	2.63	1.08	27	2.45	1.33	29	2.60	1.18	15	2.66	1.12	32
Family	3.07	0.61	27	2.88	0.70	30	2.85	0.59	17	2.82	0.60	31
Opportunities												
Outside classroom	3.15	0.99	27	3.37	0.72	30	3.06	0.77	16	3.06	0.96	31
Classroom	3.38**	0.49	27	2.97**	0.82	30	3.21	0.38	17	3.14	0.65	32
Team learning	3.63**	0.56	27	3.10**	0.92	30	3.16*	0.39	17	2.81*	1.01	31
Skills												
Social	1.78	0.38	16*	1.80	0.35	27	1.98**	0.05	10*	1.63**	0.50	31
Schoolwork	1.67	0.50	16*	1.62	0.50	27	1.90**	0.17	10*	1.42**	0.59	31
Cal. Achievement Test	525	0.48	27	518	0.48	29	538**	0.44	17	509**	0.47	32
Grades	0.01	0.71	27	-0.15	0.84	29	-0.09**	0.83	17	-0.61**	0.84	28
Substance abuse refusal	2.31	0.49	26	2.17	0.43	29	2.32	0.43	17	2.17	0.33	32
Family management	3.54	0.45	27	3.52	0.54	30	3.41	0.44	17	3.35	0.55	31
Rewards												
Classroom participation	2.98**	0.62	27	2.58**	0.75	30	3.01*	0.43	17	2.68*	0.65	32
Peer reinforcement	2.81	0.92	27	2.72	0.96	29	2.69	0.70	16	2.81	0.83	31
Positive feedback from parents	3.52	0.56	27	3.43	0.63	30	3.35	0.70	17	3.16	0.97	31
Bonding												
Attachment to school	3.19**	0.76	27	2.69**	0.93	30	3.10*	0.48	17	2.72*	0.81	32
Commitment to school	0.59**	0.70	27	0.15**	0.76	30	0.18**	0.67	17	-0.29**	0.88	32
Bonding to mother	3.00	0.81	27	2.75	0.91	28	2.79	0.61	17	2.55	0.93	32
Bonding to father	2.61	0.92	22	2.50	0.84	20	2.44	0.73	16	2.60	0.84	30
Belief in moral order	3.51	0.58	27	3.40	0.56	29	3.36	0.55	17	3.56	0.43	31
Attachment to friends	2.65	0.83	27	2.82	0.83	28	2.59	0.81	17	2.33	0.97	30
Antisocial												
Peers, student report	0.72	1.07	25	0.89	1.23	28	1.13	1.40	15	0.92	1.21	28
Peers, teacher report	0.31	0.70	16*	0.22	0.51	27	0.20**	0.63	10*	0.55**	0.77	31
Opportunities												
To get marijuana	-0.28**	0.70	27	0.14**	0.72	29	-0.20	0.80	16	-0.10	0.70	31
Neighborhood	2.65	1.16	26	2.69	1.11	29	2.47	1.01	17	2.45	1.06	31
Antisocial rewards	1.29	0.42	27	1.49	0.58	29	1.47	0.43	17	1.46	0.57	31
Substance Use Norms												
Perceived risk	3.44	0.74	27	3.36	0.84	30	3.32	0.92	17	3.53	0.72	32
Acceptability (peer group)	3.91	0.20	26	3.80	0.42	30	3.94	0.24	17	3.88	0.30	32
Expected adult alcohol use	3.46	0.70	27	3.57	0.68	30	3.59	0.62	17	3.62	0.66	32
Drug Use												
Alcohol	0.19*	0.40	27	0.39*	0.50	28	0.24	0.44	17	0.23	0.43	31
Cigarettes	0.07**	0.27	27	0.36**	0.49	28	0.06	0.24	17	0.11	0.31	28
Marijuana	0.04*	0.19	27	0.17*	0.36	29	0.06	0.24	17	0.06	0.25	32
Delinquency												
Initiation	0.56	0.51	27	0.67	0.50	30	0.41*	0.51	17	0.67*	0.48	30
Runaway	0.04	0.19	27	0.03	0.16	30	0.06	0.24	17	0.13	0.35	30

Note. Conventional=Conventional involvement and interaction. Antisocial=Antisocial involvement and interaction.

*Drop in N is due to fewer T-CBC completions by intervention teachers (additional analyses showed no systematic bias between intervention students with and without T-CBC scores).

* $p \leq .10$ (two-tailed); ** $p \leq .05$ (two-tailed).

Conventional Involvement and Interaction

No significant differences in conventional involvement and interaction were found between the intervention and control groups for low-income boys or girls.

Opportunities. As hypothesized, girls in the high-risk intervention group reported

significantly greater classroom use of cooperative team learning methods than did their counterparts in the control group, $t(55)=2.53$, $p<.05$. High-risk intervention-group boys reported slightly more classroom use of cooperative methods, $t(46)=1.80$, $p<.10$, than did control-group boys.

This indicates (here from the student's perspective) that teachers in intervention classrooms were more likely than their control counterparts to use the teaching techniques prescribed for increasing opportunities for prosocial classroom interaction.

In addition, girls in the high-risk intervention group reported significantly more opportunities for classroom involvement, $t(55)=2.34$, $p<.05$, than did girls in the high-risk control group. Boys' perceptions of such classroom opportunities, on the other hand, did not differ between the intervention and control groups at the end of sixth grade.

Skills. No significant differences in conventional involvement and interaction skills were found between the intervention and control conditions for high-risk girls. However, teachers rated high-risk intervention-group boys as significantly more socially competent, $t(39)=4.18$, $p<.05$, than high-risk boys in control classrooms. Boys' study skills and persistence in working on schoolwork were also rated by teachers as significantly better in the intervention group than in the control group $t(39)=4.02$, $p<.05$. Further, significantly higher grades were reported for high-risk boys in intervention classrooms than for those in the control group, $t(43)=2.02$, $p<.05$. Perhaps most important, high-risk intervention-group boys scored significantly higher on the combined math, reading, and language arts standardized batteries from the California Achievement Test ($t(47)=2.32$, $p<.05$) than did their counterparts in the control group.

Rewards. As predicted, girls in the intervention condition reported significantly more reinforcement for classroom participation than did their control counterparts, $t(55)=2.03$, $p<.05$. Intervention-group boys also reported more reinforcement for classroom involvement, $t(47)=1.85$, $p<.10$, than did control-group boys, although the difference only approached significance.

Bonding. As hypothesized, high-risk girls

in the intervention condition were significantly more attached, $t(55)=2.28$, $p<.05$, and more committed $t=2.13$, $p<.05$, to school than were their control counterparts. High-risk boys in the intervention condition were somewhat more attached to school, $t(47)=1.73$, $p<.10$, and significantly more committed, $t(47)=2.01$, $p<.05$, than were their control counterparts.

Antisocial Involvement and Interaction

No significant differences were found in the degree of antisocial interaction reported by high-risk intervention and control girls. In contrast, as predicted, teacher reports of child interactions with antisocial peers were significantly lower for high-risk boys in the intervention group, $t(39)=2.75$, $p<.05$, than for those in the control group.

Opportunity and rewards. Low-income intervention girls reported significantly fewer opportunities to obtain marijuana, $t(54)=2.17$, $p<.05$; however, this difference is probably due to differential attrition effects, $F=3.18$, $p<.05$, inasmuch as girls leaving the intervention group reported more opportunities for antisocial involvement than did those who remained, whereas girls leaving the control condition reported fewer opportunities for antisocial involvement than did the remaining control girls. No significant differences were found in boys' perceptions of opportunities or rewards available for antisocial involvement and interaction.

Substance use. No significant differences were found on variables pertaining to norms on substance abuse between the intervention condition and the control condition for either high-risk girls or boys.

As hypothesized, high-risk control girls were significantly more likely to have smoked cigarettes, $t(53)=2.51$, $p<.05$, and somewhat more likely to have tried alcohol, $t(53)=1.70$, $p<.10$, and marijuana, $t(54)=1.68$, $p<.10$, than were their counterparts in the intervention group.

In contrast, no significant differences in drug use initiation were found between

high-risk boys in the intervention and control groups.

Delinquency. No significant differences on delinquency measures were found between girls in high-risk intervention and control groups. However, as predicted, boys in the control group were somewhat more likely to report prior delinquency initiation, $t(45)=1.89$, $p<.10$, than were those in the intervention group, although the difference only approached significance.

DISCUSSION

The longitudinal intervention described in this article sought to change the opportunity, skill, and reinforcement structures of mainstream elementary-school classrooms and of their students' families in order to achieve positive effects on low-income students at risk for academic failure, delinquency, and substance use.

An advantage of the current research over previously reported studies is that it explored the cumulative effects of six years of intervention. It also intervened with teachers, students, and parents in both school and home environments. Few controlled studies have reported the effects of simultaneous intervention in school and family contexts as a preventive intervention for academic failure, delinquency, and drug abuse. In fact, few studies have sought to prevent such problems by addressing precursors or risk factors common to these types of behavior.

The results, nevertheless, were somewhat mixed. Girls from low-income families in the intervention perceived more opportunities and reinforcements for involvement in the classroom, expressed stronger bonding to school in both the attachment and commitment dimensions, and were significantly less likely to initiate the use of tobacco than were girls in the control group. Low-income girls in the intervention group were also less likely than those in the control group to have initiated alcohol or marijuana use, although these differences only approached significance.

These findings for low-income girls are consistent with several hypotheses of the social development model. Perceptions of greater opportunities and reinforcements for school involvement have been theorized to create greater bonding to school. This bonding should, in turn, serve as an internal control against behavior perceived as deviant, such as substance use initiation.

Among low-income boys, the pattern of findings suggests that the intervention affected both social competencies and academic skills and efforts. The latter appear to have yielded higher scores at the end of sixth grade on standardized achievement tests in math, reading, and language arts for low-income boys in the intervention condition. Intervention-group boys also perceived slightly, though not significantly, greater reinforcements for classroom involvement than did their control-group counterparts and exhibited more attachment and significantly greater commitment to school. They tended to initiate delinquency at significantly lower rates than was the case with their control-group counterparts, but their rates of drug use initiation were not significantly lower.

The positive outcomes hypothesized in the social development model include reduction of academic failure, substance abuse, and delinquency among low-income children through modification of classroom teaching practices and parent training. However, it is important to note that some of these constructs were not significantly influenced by the present intervention. Family bonding, management practices, and involvement showed no significant differences in either the male or the female sample between intervention and control groups. The lack of findings in the family domain may, in part, be attributed to low attendance for parenting classes. Despite several strategies (Hawkins, et al., 1987) for parent recruitment (including personal invitations from teachers to those considered most in need of training, free child care and transportation, and periodic lotteries), few

of the eligible low-income caretakers attended. More effective methods of engaging low-income caretakers in parenting classes need to be developed in future replications so that effects of family variables may be more fully explored.

The pattern of results suggests possible differences in the processes through which the interventions affect girls and boys. Low-income girls exposed to the intervention perceived changes in teaching practices as well as increased opportunities for classroom involvement. Low-income boys did not perceive differences in classroom opportunities. Rather, their social and academically focused skills as rated by teachers were affected. These findings may reflect social or developmental differences in the perception and behavior of boys and girls in late childhood. In spite of these differences, the interventions, as hypothesized, affected girls' (and, to some extent, boys') perceptions of rewards in the classroom and this, in turn, affected their attachment or commitment (bonding) to school. Few investigations of the effects of preventive interventions have looked separately at females and males or investigated the interaction of intervention and gender. The present results suggest that such analyses may be important both to elucidate theory and to inform practice.

The intervention resulted in significantly lower levels of tobacco use and in tendencies toward less alcohol and marijuana use by low-income girls. This occurred even though the project did not produce significant effects on norms for the use of these substances across conditions for low-income girls or boys. It is likely that the observed effects on drug use initiation resulted from increased bonding to school, as hypothesized by the social development model. For girls, school measures of attachment and commitment (bonding) were both significantly negatively correlated with drinking, smoking, and marijuana initiation.

The interventions also tended to lower the initiation into delinquency of low-in-

come boys, as shown by significant negative correlations between bonding-to-school measures and delinquency initiation. These results, combined with the findings of enhanced success and bonding to school, suggest that the intervention was effective in changing attitudes, skills, and behavior among boys. The absence of similar findings regarding drug use initiation (no significant reductions in early drug initiation were observed among low-income boys) is not consistent with these changes. However, it is possible that, as these boys mature, less frequent substance use will follow these earlier positive effects on their school and delinquent behavior.

The findings of this study are preliminary and suggestive. Clearly, attrition, the absence of baseline data and multiple comparisons, and the small numbers of low-income students available for outcome analysis all suggest caution in interpreting or generalizing the results. However, the findings provide limited support for such recent federal education policy as the 1988 Hawkins-Stafford Amendments to the Elementary and Secondary Education Act, which allocates funding for teacher training and innovations, in-classroom programs for schools with high proportions of low-income students, and parental involvement and training. The results suggest the potential of comprehensive school-based, risk-reduction strategies in affecting children from low-income families. Interventions in mainstream school classrooms may well benefit children exposed by poverty to greater risk for school failure, crime, and drug use.

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