

Scientific Findings From Family Prevention Intervention Research

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The critical role of family factors is acknowledged in virtually every psychological theory of substance abuse (Brook et al. 1990; Bry 1983; Catalano and Hawkins 1996; Dembo et al. 1979; Dishion et al. 1988; Elliott et al. 1989; Hawkins et al. 1992; Jessor 1993; Kandel and Davies 1992; Kaplan and Johnson 1992; Kellam et al. 1983; Kumpfer 1987; Newcomb and Bentler 1989; Oetting and Lynch 1993; Wills et al. 1992). Nevertheless, only recently have research findings about family protective and risk factors been applied in prevention intervention research. After briefly reviewing family factors that have been found to affect the probability of adolescent substance abuse, this chapter describes some ongoing prevention intervention research designed to alter family functioning in order to reduce adolescent substance abuse.

Participants in both the family factors studies and the prevention intervention studies come from a wide range of racial, ethnic, socioeconomic, and cultural backgrounds, so the findings have broad generalizability. Questions that have been addressed so far in family-based prevention intervention research are: Does targeting family functioning increase prevention effects compared with targeting solely youths' substance abuse precursors? How can intervention programs recruit families? Are fathers affected by interventions differently than mothers? How can risky parenting practices be altered through prevention interventions, both in the short and the long runs? What youth substance abuse precursors can be changed through family interventions? When and how do these changes occur over time? The chapter concludes with questions that still need to be addressed. As is typical in the scientific process, the recent studies raise new questions as they answer others.

PROTECTIVE AND RISK FAMILY FACTORS

Protective Family Factors

Family factors that appear to inhibit substance abuse can be categorized into five broad characteristics or activities that take place both in the home and outside the home. Protective factors within the home include close, mutually reinforcing parent-child relationships (Brook 1993; Brook et al. 1984, 1990; Catalano et al. 1993; Dishion et al. 1988; Werner and Smith 1992). Positive discipline methods on the part of parents are also protective against substance abuse (Block et al. 1988; Catalano et al. 1993; Dishion et al. 1988; Kellam et al. 1983). Protective factors outside the home include monitoring and supervision of children's activities and relationships (Catalano et al. 1992; Chilcoat et al. 1995; Dishion et al. 1988; Ensminger 1990; Fletcher et al. 1995; Richardson et al. 1989; Smart and Gray 1979). Family involvement with and advocacy for the children outside of the home, such as at church and in school, also prove to be protective against substance abuse (Brunswick et al. 1992; Kandel and Davies 1992; Krohn and Thornberry 1993). Finally, parents' taking initiative and seeking information and support for the benefit of their children is protective (Crockenberg 1981; Nye et al. 1995; Rhodes et al. 1992, 1994; Stack 1974). These protective factors appear to reduce adolescent substance abuse by establishing a parent-child relationship, from birth, within which parents exert strong positive influence by knowing what their children do day to day, by providing ample praise for their appropriate behaviors, and by constantly introducing them to and actively supporting their engagement in a variety of pleasurable alternatives to substance abuse.

Family Risk Factors

On the other hand, there are other family factors that clearly increase the probability that a child will abuse substances. Parental rejection and neglect heighten the risk of substance abuse (Block et al. 1988; Shedler and Block 1990). Physical abuse, sexual victimization, and other exposure to violence greatly increase the probability of substance abuse (Briere 1988; Briere and Zaidi 1989; Burnam et al. 1988; Clayton 1992; Dembo et al. 1989, 1992; Miller et al. 1987; Polusny and Follette 1995; Rohsenow et al. 1988; Zierler et al. 1991). Finally, substance abuse by parents and siblings greatly increases the chance that children will abuse substances (Andrews et al. 1993; Brook et al. 1991; Dishion et al. 1988; Merikangas et al. 1992; Sher et al. 1991). In sum, these family risk factors seem to increase

substance abuse by producing children with memories of rejection, pain, humiliation, and interpersonal conflict, while depriving them of the protective factors of interpersonal warmth, supervision, and positive guidance in effective life functioning. The unpleasantness in these children's lives increases the reinforcing value of substance use, while the missing protective factors leave the children without viable, alternative methods to gain pleasure or relief from pain.

CHANGING FAMILY FUNCTIONING TO PREVENT SUBSTANCE ABUSE

An obvious implication of the above review of protective and risk family factors is that perhaps substance abuse could be prevented if family functioning could be changed. The studies that are reviewed below have begun investigating this hypothesis, one question at a time. Their findings are promising enough to warrant further research into improving family factors.

Does Targeting Family Functioning Increase Prevention Intervention Effects Compared With Targeting Individual Youth Precursors to Substance Abuse?

In a randomized clinical trial, Szapocznik and associates (Santisteban et al., in preparation) at the Miami Spanish Family Guidance Center compared the effects of brief strategic/structural family therapy (Szapocznik and Kurtines 1989) with an adolescent group therapy format control condition in a sample of Hispanic families with adolescents (ages 12 to 17) who were either using drugs or at risk for drug use due to behavior problems, which are precursors to substance abuse. In addition to the comparison of intervention effectiveness, this study also investigated the hypothesized mediating relationship of changes in family interaction on the global efficacy of the intervention.

In this study, a group format for the control condition was selected because it is a modality widely utilized with behavior problem adolescents and does not have family functioning as its hypothesized mechanism of change. This condition involved a process-oriented intervention in which group members were encouraged to discuss and solve problems among themselves. It is important to note that this study did not attempt to test group therapy interventions that were state of the art, but rather was designed to provide a control for the

essential nonspecific ingredients critical to the therapy process. Because the family and group interventions shared certain characteristics but were sufficiently distinct from one another, the group condition served as an excellent choice for a comparison group. For example, both family and group interventions focused explicitly on the overt interactions of session participants in the here and now; in the family condition, however, the focus of intervention was on family interactions, while in the group condition, the focus was on interactions in the peer group context.

This study used a mixed experimental design. The between-groups factor was the two levels of intervention (structural family therapy and group therapy), and the within-groups factor was time, using a repeated measures approach with two assessment points (pretherapy and posttherapy). An experimental design was achieved by randomly assigning 79 adolescents to one of two conditions: (1) brief strategic/structural family therapy or (2) control group therapy condition (Santisteban et al., in preparation).

Results

Subjects assigned to the family intervention condition showed significantly greater improvement in behavior problems than did subjects assigned to the control condition ($p < 0.05$). Family therapy cases showed significant preintervention-to-postintervention improvement in both conduct disorder ($p < 0.001$) and socialized aggression ($p < 0.001$), while control condition cases showed no significant change in either conduct disorders or socialized aggression. Analyses of clinical significance revealed similar findings.

A set of exploratory analyses was used to examine the impact of treatment on the proposed mediating variable, family functioning as measured by the Structural Family Systems Ratings (Hervis et al. 1991; Szapocznik et al. 1991). This measurement involved the administration of standardized stimuli composed of three tasks that the family must perform together. The scoring of family functioning was organized into broad, theoretically and clinically important dimensions of structural (i.e., interactional) family functioning, boundaries and emotional distance between family members, and conflict resolution, a measure of the family's ability to express, confront, and negotiate differences of opinion, disagreements, and conflicts. The researchers partitioned the 49 cases that finished the study into two groups based on a median split: "good family functioning" at intake ($N = 27$) and "poor family functioning" at

intake (N = 22). Results indicate that in the “poor family functioning” group, cases in the family condition showed significant pretherapy-to-posttherapy improvement; while in the control condition, no significant change was observed. On the other hand, the “good family functioning” group, cases in the family condition showed no significant change in family functioning, while cases in the control condition showed statistically significant deterioration.

Thus, this comparison study addressed two important questions about the feasibility of applying knowledge about family risk and protective factors to the prevention of adolescent substance abuse. First, the results support the notion that poor family functioning can be improved if prevention interventions are designed to do so. Second, the study shows that targeting family functioning can reduce adolescent substance abuse precursors (i.e., behavior problems). Encouraging results such as these, however, raise another question: How can parents whose families are not functioning well be persuaded to take advantage of family prevention interventions?

How Can Hard-To-Reach Families Be Engaged in Family Interventions?

Engaging families of conduct-disordered adolescents is a challenge to the field. To bring these families into intervention, Szapocznik and associates developed and tested Strategic Structural Systems Engagement (Szapocznik and Kurtines 1989; Szapocznik et al. 1990). This model is based on the premise that resistance can be redefined as a “symptom” that is maintained by a family’s patterns of interactions. Thus, within their framework, the solution to overcoming the undesirable symptom of resistance is to restructure that family’s patterns of interactions that permit the symptom of resistance to continue to exist. After this first phase of the intervention process is accomplished in which resistance has been overcome and the family is participating, the adolescents’ problem behaviors can then be treated through family therapy.

To test the effectiveness of Strategic Structural Systems Engagement in engaging and bringing to therapy completion families with drug-using youth, a major experimental study was conducted (Szapocznik et al. 1988). An experimental design was achieved by randomly assigning 108 Hispanic families of drug-using adolescents with problem behaviors to one of two conditions: Strategic Structural Systems Engagement or Engagement as Usual. The Engagement as Usual condition was the control condition. In the control condition,

the clients were approached in a way that resembled as closely as possible the kind of engagement that usually takes place in outpatient centers. The Engagement as Usual condition was defined through a survey of a representative sample of local outpatient treatment centers.

Considerable work was done in developing a manual for the experimental condition (Szapocznik and Kurtines 1989; Szapocznik et al. 1990) and in describing modality guidelines for both conditions to ensure the standardization and replicability of the study. Treatment integrity guidelines and checklists were developed for both conditions. Treatment integrity analyses demonstrated that interventions in both conditions adhered to guidelines and that the two modalities were clearly distinguishable by the level of engagement effort applied ($F[1,106] = 106.69, p < 0.001$). The family intervention itself, however, was identical for the two engagement groups.

Results

The effects of the experimental condition were dramatic. Over 57 percent of the families in the Engagement as Usual condition failed to be engaged into treatment compared with 7.15 percent (four families) in the Strategic Structural Systems Engagement condition ($p < 0.001$). The differences in retention rates were also dramatic. In the Engagement as Usual condition, dropouts represented 41 percent of the cases that were engaged, whereas dropouts in the Strategic Structural Systems Engagement condition represented 17 percent of the engaged cases. Thus, of all of the cases that were initially assigned, 25 percent in the Engagement as Usual condition and 77 percent in the Strategic Structural Systems Engagement condition were successfully terminated ($p < 0.001$). For families that completed treatment in both conditions, there were highly significant improvements both in overall problematic adolescent functioning ($F[1,57] = 39.83, p < 0.0001$) and in adolescent drug use ($[1, N = 56] = 40.00, p < 0.0001$); these improvements were not significantly different across the engagement conditions. The critical distinction between the conditions was their differential rates of engagement and retention.

A second study, designed to replicate these findings and to further explore the mechanism by which the interventions' efficacy was achieved, has replicated the original findings and supports the notions that specialized interventions can dramatically increase rates of

engagement of hard-to-reach families (Santisteban et al. 1996). Thus, research by Szapocznik and associates clearly shows that not only can family prevention intervention reduce precursors to substance abuse, but also hard-to-reach families can be recruited to take advantage of this effective intervention. Such promising results raise another question, described in the next section.

How Are Fathers and Mothers Affected by Family Prevention Interventions on a Session-by-Session Basis?

Based on promising program results of the Strengthening Families Program (SFP) (Kumpfer 1981; Kumpfer et al. 1989) in several independent replications, a group of researchers at the Center for Family Research in Rural Mental Health at Iowa State University selected SFP for a National Institute of Mental Health-funded clinical research trial targeting all middle school-age youth and their families in economically disadvantaged counties in rural Iowa.

As covered by Kumpfer (this volume), SFP has repeatedly been found in experimental and quasi-experimental studies to improve family relations, parenting, and children's negative behavior and social skills as well as reduce parent's and older children's drug use. These results are for prior National Institute on Drug Abuse (NIDA) and Center for Substance Abuse Prevention (CSAP) studies in Salt Lake City, UT; Selma, AL; and Detroit, MI. (For overviews see Kumpfer et al. 1996.)

The content of the program was modified to be age appropriate and to match local culture. Additionally, the content of the program was based on resiliency-enhancing principles derived from developmental psychopathology research and Kumpfer's Resilience Framework (Kumpfer 1994, in press-*a, b*; Kumpfer and Bluth, in press). The new program, called the Iowa Strengthening Families Program (ISFP), was developed by Drs. Kumpfer and Molgaard (Molgaard and Kumpfer 1993). They provided 3 days of extensive training to 65 carefully selected adults who, in teams of three (two in the youth skills training group and one in the video-based parent training group), delivered the family skills training program in experimental schools.

The content of the youth sessions focused on strengthening prosocial dreams and goals for the future, dealing with stress and strong emotions, appreciating parents and elders, increasing the desire to be responsible, and building skills to deal with peer pressure. Parent sessions included discussions of parents' potential positive influence

on preteens and young teens, understanding the developmental characteristics of youth this age, providing nurturing support, dealing effectively with children in everyday interactions, setting appropriate limits, following through with reasonable and respectful consequences, and sharing beliefs and expectations regarding alcohol and other drug use. During the family sessions, parents and youth practiced listening and communicating with respect, identifying family strengths and family values, using family meetings to teach responsibility and solve problems, and planning fun family activities. Youth, parent, and family sessions made use of discussions, skills-building activities, viewing videotapes that model positive behavior, and games designed to strengthen positive interactions between family members.

Because recruitment of families for parenting and family programs can be difficult if not carefully planned, when engagement of families was not considered a major part of the program activities (Kumpfer 1991; Spoth and Redmond 1993; Szapocznik et al. 1988), SFP followed recruitment procedures developed after extensive experience in recruiting local families for studies at the Center for Family Research in Rural Mental Health at Iowa State University (also see Spoth and Redmond 1996). After receiving a letter of endorsement from their school principal, program flyers, and announcements in the school, each eligible family was sent an introductory letter followed by a phone call inviting them to participate in the research project. Families with sixth graders, including those who did not volunteer for the research and did not complete the pretest, were invited to attend the ISFP held in the local school. All families were called by a local parent to encourage their involvement. Parents and youth were also encouraged to participate by advertising incentives that included free \$5 grocery certificates for parents, given at two of the sessions, and coupons for free video rentals and food for the youth. In addition, the youth were told that they would receive a “graduation” gift of \$25 if they and their parent(s) attended at least five of the first six sessions.

To evaluate program impact, a large-scale clinical trial, including long-term followup evaluations (1- and 2-year followups in addition to pretests and posttests), was undertaken in 19 counties in rural Iowa. To avoid contamination problems resulting from the frequent interaction of families in small rural communities, schools were the unit of assignment selected on the basis of high percentages of low-income families participating in a school lunch program. The true experimental design included random assignment of 33 schools to three conditions: (1) ISFP (Molgaard and Kumpfer 1993); (2) Preparing for the Drug-Free Years (Hawkins et al. 1992), a five-

session youth and family program; and (3) a minimal contact control condition. Families in the minimal contact control condition received four Cooperative Extension Service leaflets, which gave information on developmental changes of preteens and teens in physical, emotional, cognitive, and relational domains.

This chapter, however, reports only the results of session-by-session surveys administered to the mothers and fathers who attended ISFP sessions. These surveys were collected at the beginning and end of each session on content specific to the topics of the seven sessions and analyzed by Kumpfer at the University of Utah. The reason to collect these data was to determine the immediate impact on the family members of the skills training and to compare their intentions to change with actual reported behavior.

Participants were from a total of 161 families recruited into 21 ISFP groups at 11 different schools. The groups ranged from 3 to 15 families with an average group size of 8 families, composed of an average of 12 adults and 8 youth. Both single-parent and two-parent families participated. In more than half of the two-parent families, both parents attended at least some of the sessions. Eighty-five percent of the families completed five of the first six sessions. Of the parents who attended one of the sessions, 38 percent were fathers and 62 percent were mothers.

Results

At the University of Utah, standard statistical tests were used to assess changes in parents' endorsements of targeted attitudes and behaviors from the beginning of a training session to the end of the same training session. Mothers' data were analyzed separately from fathers' data. Pre-session-to-post-session, self-reported, statistically significant improvement was found in many of the targeted attitudes about parenting and actual parenting behaviors. Examples are: Only fathers reported increased commitment to support youth's dreams and goals ($p = 0.01$) and increased willingness not to lose tempers when talking to their child ($p = 0.002$); only mothers reported increased knowledge of importance of letting children learn from their own experiences ($p = 0.000$) and increased importance placed on the value of family meetings ($p = 0.000$); both fathers and mothers increased awareness of the value of setting rules ($p = 0.02$ and $p = 0.015$, respectively) and increased willingness to be involved in school and child's schoolwork ($p = 0.01$ and $p = 0.004$, respectively). It is noteworthy that improvement occurred in a greater percentage of

session objectives in the later sessions (4 through 6) than in the earlier sessions (1 through 3). Another observation is that improvement in fathers was often different from the improvement in mothers.

Correlational tests were used to compare parents' behavioral intentions at the end of one training session with their actual reported behavior at the beginning of a subsequent session. Again, the areas where there were statistically significant relationships between intentions and subsequent reported behavior were generally different for mothers and fathers. For example, mothers alone reported significant correlations between intentions and subsequent behavior in "discussing your sixth grader's goals and dreams" ($r [121] = 0.346, p < 0.000$); in "sitting down as a family to discuss concerns, schedules, rules, or plans for a family activity" ($r [120] = 0.341, p < 0.000$); and in "thinking of consequences that are related to your child's misbehavior and are not too harsh" ($r [121] = 0.228, p < 0.01$). On the other hand, fathers alone reported significant correlations between intentions and subsequent behavior in "complimenting, praising, or encouraging your child" ($r [52] = 0.267, p < 0.05$) and in "listening carefully to your child's point of view when there is a problem" ($r [42] = 0.387, p < 0.01$). There were only two areas in which both fathers and mothers showed significant correlations between intentions and subsequent behavior. These areas were "thinking about what might have triggered anger or another strong emotion in their child" ($r [53] = 0.393, p < 0.004$ and $r [113] = 0.208, p < 0.027$) and "discussing rules and consequences concerning alcohol, tobacco, and drugs with their preteen" ($r [53] = 0.309, p < 0.02$ and $r [119] = 0.260, p < 0.004$, respectively).

Taken together, these session-to-session findings support the hypothesis that intention to change is often a precursor of behavioral change, but not always, and that parenting practices can be affected positively, at least in the short run, through prevention intervention. The longer term posttest and annual followup data will be compared with the short-term results to create a more complete picture of changes in the families. The findings also suggest that the greatest impact comes after several training sessions (i.e., just two or three sessions are not sufficient). The results also suggest that maximum benefits occur only if both fathers and mothers attend, in that fathers and mothers were generally affected by the training in different ways. A question that these promising improvements in protective family factors raise, however, is whether family prevention intervention might also reduce family-related risk factors, such as parental substance abuse.

Can Risky Parenting Practices Be Affected by Family Prevention Intervention?

The Focus on Families (FOF) was designed by Catalano and associates as a multipronged intervention for families headed by recipients of methadone treatment (see Catalano et al., in press-*a, b*; Gainey et al. 1995; Hoppe et al., under review; Plotnick et al., in press). FOF was meant to address both family-related risk factors for children's substance abuse and risk factors for parents' relapse. The intervention was also designed to enhance family-related protective factors. A primary goal of the intervention was to reduce parents' illicit drug use by teaching them relapse prevention and coping skills. Parents were also taught how to manage their families better by increasing child involvement in problemsolving, providing opportunities for involvement, giving consistent consequences for both positive and negative behavior, setting clear expectations for their children, and addressing conflict. Although a number of programs have been developed to reduce children's risk of drug abuse when one or both parents have a substance abuse problem (Falco 1992; Gross and McCaul 1992; Haskett et al. 1992; Russel and Free 1991; Springer et al. 1992), few rigorous experimental evaluations of these programs have been published (Catalano et al., in press-*c*; Kumpfer and DeMarsh 1986). Thus, FOF represents one of the first randomized experimental evaluations of a prevention intervention with this population.

There were 144 parents from 130 families recruited from two Seattle-area methadone clinics during the course of 2_ years. To be eligible to participate, parents had to have been in methadone treatment for a minimum of 90 days and have one or more children between the ages of 3 and 14 years. Seventy-five percent of the parents in the sample were female, 77 percent were white, 18 percent were African American, and 5 percent were of mixed or other ethnicity. Parents' mean age was 35.36 (SD = 5.67), and their mean age of first use of opiates was 19.14 (SD = 5.00). Families were randomly assigned to either the experimental or the control condition after blocking on parents' race, parents' age at first drug use, whether parents lived with a spouse or partner, and ages of children. Because of anticipated attrition from the experimental program, a higher proportion of eligible families were assigned to the experimental (N = 75) than to the control (N = 55) condition. Of the 144 parents and 178 children who enrolled in the project, 94 percent were interviewed immediately after the completion of the parenting training groups portion of the

intervention, 94 percent were interviewed 6 months later, and 92 percent completed a 12-month followup interview. (Children younger than 6 years were not interviewed.) Attrition did not vary by condition at any of the timepoints. A descriptive comparison of initial behavior problems of the FOF children with those of other urban school children in high-crime neighborhoods in the same city showed a significantly higher prevalence of cigarette and marijuana use, school suspension or expulsion, and having been picked up by the police (all $p < 0.05$) among the FOF sample.

FOF is of long duration, pays particular attention to recruitment and retention mechanisms, and offers other supportive services. The FOF intervention lasts 9 months (a 5-hour family retreat, 4 months of 32 twice-a-week parent training groups, 9 months of home-based services). Children attend 12 sessions to practice skills with parents. The program is linked with other treatment services (housing, child welfare services, employment services, etc.), when appropriate.

The FOF parent training session topics focus on specific developmental risk and protective factors and include the following: family goal setting, relapse prevention, family communication skills, family management skills, creating family expectations about other drugs and alcohol, teaching skills to children, and helping children succeed in school. In addition to the parenting curriculum, the program also includes home-based case management to help parents and children generalize and maintain the skills learned in group sessions. These home-based services are provided to families for about 9 months, beginning 1 month before the start of the parent training sessions and continuing through the group training period (4 months) and 4 months afterward.

Results

Seventy-five percent of eligible parents consented to be involved in the study. Of those assigned to the program condition ($N = 82$), 86.5 percent (71) initiated participation in the parenting groups. These relatively high rates of consent and initiation for this high-risk sample suggest that parents in treatment for opiate addiction are willing to enroll in an intensive family prevention program.

Treatment exposure measures were rated at the end of each skill session by parent skill group leaders. There was tremendous variation in participation in the skills training sessions. Clients attended about

half of the sessions and actively participated in about 40 percent of the sessions they attended.

Outcomes of the FOF program for both parents and children were measured at immediate postparent training and the 6- and 12-month followups. All statistically significant differences between the experimental and control parents favored the experimental group. Experimental parents reported greater relapse prevention self-efficacy and skill at immediate posttest and at 12-month test followup. At the 12-month followup, experimental families also reported less domestic conflict and had established more household rules than control families. Importantly, experimental parents reported using significantly less heroin at the end of parent training and at the 12-month followup than control parents. Biochemical measures to assess veracity of self-reports of drug use were employed with a random sample of subjects at each time period, and no experimental-control difference in veracity was discovered.

Few experimental-control differences were found in child outcomes. Interestingly, two differences appeared to favor the control group. At the 6-month followup, control children were more likely to report that their parents used denying privileges as a form of discipline. At 12 months, experimental children were less likely to be living with their FOF parents.

Other statistically significant differences, however, showed age group interactions. Whereas no effect was found for younger children at the 6-month followup, older experimental children were less likely than older control children to be living with their father. Also at 6-month followup, the youngest experimental children reported significantly more involvement in activities with their parents than the youngest control children, while the effect was the opposite for the older experimental children, who reported engaging in fewer activities with their parents than did the older controls.

The FOF project has documented several key findings. First, children of recipients of methadone treatment displayed higher levels of problem behavior than similar-age children in a general population sample. Second, parents in methadone treatment can be successfully engaged and will participate in intensive family interventions, as indicated by the high level of consent to participate and the substantial percentage of parent training sessions experimental parents attended. Third, the risk- and protective-focused intervention increased parent relapse prevention skills and self-

efficacy. Fourth, the intervention had important effects on reducing parents' drug use and domestic conflict and increasing the number of family rules. Fifth, the intervention had few impacts on children's reports of risk factors. There were indications, however, that the intervention increased involvement in prosocial activities for young children, but decreased such involvement for older children.

Overall, this pattern of results is promising both as a treatment adjunct to reduce parental drug use and as a risk reduction approach to prevent substance abuse among children. For parents in methadone treatment, these results show dramatic reductions in frequency of use of heroin, the primary drug of abuse. These are effects above those produced by involvement in a methadone treatment program. Programs like FOF may be an important adjunct to treatment programs to aid in reducing participants' drug use.

As a prevention intervention for children of substance abusers, there is also promise of effectiveness. Reductions in family risk factors—including parents' self-efficacy and skill levels, family management, domestic conflict, and parents' drug use—were strongest at 12-month followup. Theoretically, changes in parent behavior are expected prior to changes in child behavior, and changes in parent behavior are expected to precede changes in children's perceptions of parent behavior. Furthermore, child reports of differences favoring the control group at the 6-month followup disappeared at the 12-month followup. Consequently, Catalano's preliminary results leave as yet unanswered (1) exactly what effects a family intervention might have on children's substance abuse precursors and at what point in the child's life might a family intervention have an effect and (2) whether delayed or "sleeper" effects might appear after a family intervention is completed.

What Specific Youth Substance Abuse Precursors Can Be Reduced Through Family Intervention, and When Developmentally Can These Changes Occur?

In preliminary analyses of the first cohort in the Coping Power Program (CPP), Lochman and Wells (1996) have found indications of effects on two youth substance abuse precursors as well as indications for timing interventions at important developmental transition points. In the first cohort for CPP, 120 boys identified as being at risk for substance abuse because of high levels of teacher-rated aggression in fourth or fifth grades were randomly assigned to three cells. The first two cells consisted of a school-based child intervention and of a combined child plus parent intervention, and the third cell was an untreated risk cell. The child component focused on the social-cognitive difficulties of aggressive children and was based on an anger coping program that has provided substance use prevention effects at a 3-year followup in adolescence (Lochman 1992). The child component was provided in a group format in boys' elementary and middle schools and lasted for 33 sessions across 1_ years. The parent component was provided in a group format offered in community and school settings and had 16 sessions over the 1_- year intervention period. The parent intervention addressed alternative, less harsh methods of discipline, increased monitoring, and stress management for the parents. Within the authors' conceptual model, a key mediator for children's aggressive behavior, as a proximal outcome, and for early substance use, as a distal outcome, is children's social competence. Examining teachers' ratings of social competence (assessing children's regulation of emotional arousal, negotiation skills, and problemsolving), Lochman found that the two intervention cells had significantly higher levels of social competence at the end of the intervention period than did the untreated aggressive boys' cell. Notably, the combined intervention produced the highest levels of social competence, indicating potential synergistic effects of the parent and child interventions combined. Thus, parent intervention appears to promote parents' facilitation of children's socially competent behavior with their peers and teachers.

When parents' ratings of children's aggressive behavior were examined for the first cohort, Lochman found that the two intervention cells produced significant reduction in boys' aggressive behavior, in comparison with the untreated aggressive cell, primarily for the boys identified in fifth grade. Thus, intervention appeared to have more notable effects on boys' aggressive behavior at home when

it began in the year prior to the middle-school transition and then continued throughout the first middle-school year (fifth- and sixth-grade inter-vention period) than when intervention occurred only prior to the middle-school transition (fourth- and fifth-grade intervention period). This preliminary finding suggests that these prevention interventions may have maximal effect when provided at developmental transition points when children and parents are concerned about upcoming changes and are relatively open to intervention.

Can Delayed or “Sleeper” Effects on Youth Substance Abuse Precursors Appear After a Family Intervention Is Completed?

Bry and associates (1986), Bry and Krinsley (1992), and Krinsley (1991) have repeatedly found evidence of delayed or “sleeper” effects on youth substance abuse precursors as a result of the researchers’ prevention intervention, which combines home-based, family behavioral counseling and school-based, youth behavioral counseling. A therapist meets weekly both individually with an “at risk” youth at the middle school and together with the youth and his or her parents at home. At the meetings, the therapist reviews what one of the youth’s teachers says that the youth can do specifically that week to improve his or her grades or behavior (e.g., hand in 25 completed math problems or arrive at class on time). Then the therapist helps the youth plan how to accomplish the goal and models and coaches the parents to facilitate and recognize the accomplishment. As a function of the current collaboration between project directors Bry and associates (1991) and Boyd-Franklin (1989), the prevention intervention is now known as Targeted Adolescent/Family Multisystems Intervention (TAFMI). The youth substance abuse precursors that this family prevention intervention reliably reduces are (1) poor middle-school performance; (2) early adolescent substance use, if use has already commenced; and (3) the initiation of substance use, if use has not already commenced.

In the most recently completed study, Krinsley (1991) guided the school personnel in an ethnically mixed (black, white, and Hispanic) working-class, northeastern town to identify the seventh and eighth graders with the highest numbers of substance abuse precursors. After the researchers received consent from 88 percent of the parents, who were told that their adolescents were identified because they could do better in school, the youth all received a year of school-based monitoring and behavioral and academic counseling plus booster

sessions. A randomly determined half of the families also received 3 to 4 months of coordinated, home-based, behavioral family counseling plus booster sessions (TAFMI), which aided parents in monitoring and supporting their adolescents' school performance and appropriate behavior at school and in the community. The sessions were scheduled at the family's convenience and rescheduled repeatedly until they actually occurred. In response to this respectfully persistent approach, 100 percent of the families assigned to the combined youth and family counseling condition completed the intervention.

No group difference in school performance or substance use was observed during the academic year when the active interventions occurred. During the followup year, however, the grade point average of the adolescents who had received only the school-based counseling began to decrease over time until it had decreased from 70 to 67. Because the grade point average of the adolescents who had received both the school- and family-based counseling simultaneously increased over time from 70 to 75, by the end of the followup year the school performances of the two experimental groups were on entirely divergent trajectories and were statistically significantly different. Even more importantly, the substance use patterns of the two groups were also on divergent trajectories and were statistically significantly different by the end of the followup period. Whereas the group of adolescents who received only the school-based counseling increased their substance use during the 2 academic years of the study, individual analyses revealed that not one of the adolescents who received both school-based and family-based counseling increased substance use or initiated substance use during the 2 academic years of the study.

Thus Krinsley's (1991) results suggest, as do others', that family prevention interventions can indeed generate positive effects on youth substance abuse precursors that do not appear immediately at the end of the interventions. Krinsley's substance use findings also illustrate that positive effects can occur in the form of merely maintaining preintervention levels, in that the natural lifecourse for many high-risk youth is deterioration over time. The booster sessions probably helped Krinsley's intervention effects increase over time. Given Krinsley's experimental design, however, the most likely determinants of the delayed, or sleeper, intervention effects were increased influence and involvement of the youth's family members.

CONCLUSIONS

Taken together, the above preliminary family prevention intervention studies, from a variety of communities and perspectives, suggest that (1) family functioning and parenting behavior can be altered preventively by explicitly including families in the intervention; (2) hard-to-reach families can be recruited to participate by employing specific engagement techniques; (3) fathers and mothers should both be included in the intervention because they can be affected differently by it on a session-by-session basis; (4) a youth's substance abuse precursors can be reduced over time by family prevention intervention; and (5) risky parenting behaviors, such as substance abuse, can also be reduced by family prevention intervention. This promising evidence that family prevention interventions can affect family functioning and youth precursors, however, raises further questions. For instance, How broadly generalizable are these preliminary findings—across cultures, races, ethnicities, and socioeconomic groups? Furthermore, most of the interventions have been aimed at one specific age group; yet some children's lives have substance abuse risk factors from birth. Is there an optimum age for family prevention interventions, or is it necessary for some youth's families to experience interventions at several different developmental transitions? Moreover, Do interventions have optimal lengths, or should length be individualized, based on the measurement of risk or protective factors?

At least two of the above studies raise the issue of unintended effects. Santisteban and colleagues (in preparation) reported that a youth group intervention showed evidence of harming some families' functioning. Catalano observed that FOF may lead to older children's spending less time with their parents. Future studies could assess whether such unintended effects are replicable and whether they contribute negatively or positively to youth outcomes. Minimally, their findings should alert researchers to measure more outcomes and to watch for possible unintended intervention effects.

Finally, the studies introduce intriguing questions about the change processes involved. What changes in family members and their adolescents persist beyond family sessions as a function of intervention? How do these changes interact with risk and protective factors? Eventually, researchers can explore exactly what mechanisms, processes, and mediating variables link family intervention effects with what youth actually do when they have an opportunity to use or refuse substances.

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