Preventive Intervention for Urban, Low-Income Preschoolers at Familial Risk for Conduct Problems: A Randomized Pilot Study

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Conducted a pilot study to test the feasibility of a prevention program for promoting parenting in families of preschoolers at high risk for behavior problems. Risk status was based on a family history of antisocial behavior and residence in a low-income, urban community. Thirty preschoolers (ages 2½ to 5) and their parents were randomly assigned to a 1-year, home- and clinic-based intervention or to a no-intervention control condition. Despite families’ multiple risk factors, high rates of attendance and satisfaction were achieved. Relative to controls, intervention parents were observed to be significantly more responsive and use more positive parenting practices. Results support the feasibility of engaging high-risk families in an intensive prevention program. The meaningful changes achieved in parenting suggest that a preventive approach is promising for families with multiple risk factors.

Youth violence and antisocial behavior is a serious national problem, causing widespread suffering and harm. In a recent survey, 30% of 6th through 10th graders reported involvement in bullying, either as perpetrator, victim, or both (Nansel et al., 2001). Difficulties in treating youth with well-established conduct disorders (CD; Kazdin & Wassell, 1999), as well as a body of literature on the early predictors and precursors of adolescent antisocial behavior, have fostered prevention efforts in the hope of altering the developmental trajectories of high-risk youth.

Children from low-income, urban neighborhoods are exposed to multiple risk factors that facilitate the development of conduct problems. For example, caregivers’ stress, insularity, and lack of social support, factors often associated with neighborhood disadvantage, promote maladaptive parenting practices and later conduct problems (Dodge, Pettit, & Bates, 1994; Masten & Coatsworth, 1998; McLeod & Shanahan, 1993). In addition, low-income, urban children are more likely than their more affluent counterparts from more stable neighborhoods to be exposed to community and domestic violence, additional factors associated with the development of conduct problems (Miller, Wasserman, Neugebauer, Gorman-Smith, & Kamboukos, 1999). Children at risk for the development of conduct problems based on low-income and residence in urban, high-crime neighborhoods have been targeted for prevention (Conduct Problems Prevention Research Group, 1992; Dumas, Prinz, Smith, & Laughlin, 1999; Huesmann et al., 1996; Kellam & Rebok, 1992; Reid, Eddy, Fetrow, & Stoolmiller, 1999; Webster-Stratton, 1998). Numerous studies employing randomized controlled trial designs and theory-based interventions have demonstrated the efficacy of family-based prevention with low-income, urban children (Wasserman & Miller, 1998).

It is well documented that antisocial behavior is familial (Patterson, 1984; Rowe, Rodgers, & Meseck-Bushey, 1992) and that high-risk children are likely to
have parents and siblings with histories of antisocial behavior. In a large nationally representative sample, male and female delinquency was predicted by the offending of siblings, independent of individual, peer, and family characteristics (Lauritsen, 1993). Similarly, shared family influences have been shown to account for substantial variability in self-reported delinquency in sibling pairs (Rowe et al., 1992). Young children with relatives with antisocial behavior are at increased risk for conduct problems for genetic and environmental reasons (Bank, Patterson, & Reid, 1996; Conger & Rueter, 1996; Edelbrock, Rende, Plomin, & Thompson, 1995; Reiss & Farrington, 1994; Rowe et al., 1992; Slomkowski, Rende, Conger, Simons, & Conger, 2001). The transmission of environmental risk through coercive sibling interactions has been well documented (Patterson, Reid, & Dishion, 1992). Other social learning mechanisms include exposure to antisocial role models and values and exposure to the relative’s deviant peers (Dishion, Patterson, & Griesler, 1994). In addition, it is likely that children with older siblings with histories of antisocial behavior have parents with particularly ineffective, unresponsive, and harsh parenting practices (Wasserman, Miller, Pinner, & Jaramillo, 1996).

Based on findings on sibling delinquency, Rowe et al. (1992) made the following suggestion, “In practical terms, the sibling correlations support family-based interventions for delinquent behavior. Even though the correlations do not explain much variance, at the extremes, it would be worthwhile to select the younger siblings of highly delinquent older siblings as targets for prevention efforts” (p. 66). Although young children who have relatives with antisocial behavior are at high risk for conduct problems, they have not been targeted for intervention. It is not known whether family-based preventive intervention is feasible or effective with children with a family history of antisocial behavior, a population at great risk. This pilot extends findings from prevention trials with young children from low-income communities by focusing on families of preschoolers whose family members have histories of antisocial behavior.

This report presents a pilot investigation of a program designed to improve aspects of parenting postulated to mediate the early development of conduct problems in high-risk children. The primary goal of the pilot was to develop and test the feasibility of a prevention program suitable for low-income, urban preschoolers and parents with a family history of antisocial behavior. Because of the dearth of trials targeting this high-risk group, it was necessary to establish the feasibility of recruiting families with preschoolers who were at high risk yet free of CDs, to establish the acceptability of randomization procedures and the acceptability and adequacy of a control condition for retaining participants, as well as the potential efficacy of the intervention.

The prevention program was based on the Incredible Years Parenting Program, developed and tested extensively by Webster-Stratton and colleagues. The parenting program has demonstrated efficacy with young children referred for conduct problems (Taylor, Schmidt, Pepler, & Hodgins, 1998; Webster-Stratton, 1990). In two recent studies, the Incredible Years program has been shown to be effective as a preventive intervention with preschoolers from diverse ethnic and cultural backgrounds who are enrolled in Head Start (Webster-Stratton, 1998; Webster-Stratton, Reid, & Hammond, 2001). The program’s use of videotape modeling in a group format and reliance on a collaborative and supportive model seemed especially well suited for parents with low educational attainment, high levels of stress, and limited social supports. We augmented the program with a children’s group, opportunities for guided parent–child interactions, and home visits.

We hypothesized that, following the prevention program, parents in the intervention would be more responsive to their children, use more verbal praise, have more positive physical contact, and be less critical during play interactions than controls. No prediction was made regarding children’s short-term behavioral response to the program (immediately post-intervention), because their behavioral status at the beginning of the intervention was not expected to be highly problematic. Group differences on child behavior would only be detectable if controls developed problems over the course of the intervention period at a greater rate than children in the intervention condition. The expectation was that intervention children whose parents showed improvements in parenting practices would be significantly less likely than controls to develop conduct problems (i.e., aggression with peers, noncompliance to parental and teacher commands) by kindergarten.

Method

Participants

Families of low-income, urban preschoolers (ages 2½ to 5 years) with older relatives with a criminal record or with CD (or oppositional defiant disorder [ODD] if the index relative was under 7 years old) were recruited from three sources from 1994 to 1995: (a) family court records of adjudicated youth with guilty findings, (b) pediatric psychiatry outpatient clinic for disruptive behavior disorders, and (c) aftercare services for first-time adult offenders. Each source required slightly different methods for recruitment and consent. (a) Family court: With permission of the New York City Corporation Counsel, records of adolescents (ages 12 to 16) found guilty of offenses within the previous year through Family Court in Manhattan and Bronx, New York, were screened for the presence of a
2½ to 5-year-old sibling. Eligible families were sent a mailing explaining the study and a stamped letter to be returned within 2 weeks if they did not want to be contacted. Study staff contacted families who did not return the mailing. (b) Pediatric psychiatry outpatient clinic: Clinic charts of youth (ages 5 to 12) receiving outpatient treatment for CD at a New York City hospital were screened for the presence of a preschool-age sibling. The primary clinician of children with a diagnosis of CD (or ODD if under 7) inquired about the parent’s willingness to be contacted by study staff. (c) After-care outpatient service: Presentations were made to all case managers serving first-time adult offenders enrolled in a court-mandated aftercare program. Case managers asked clients with preschool-age children, siblings, nephews, or nieces to give written materials on the study to the preschooler’s primary caregiver. The materials provided a telephone contact for interested caregivers.

Information collected from family court and outpatient pediatric clinic records was limited to family contact information (i.e., address and telephone number) and eligibility criteria specific to the preschool-age sibling (i.e., child’s age and relationship to relative with antisocial behavior). Through a telephone screen with families recruited from all three sources, possible eligibility and parental interest in the study were established. Fully informed signed parental consent was obtained either at the University or in the family’s home. Project staff followed a detailed script for the initial telephone contacts and for the consent visit. Parents were provided with basic information about the study over the telephone (“We are interested in talking with parents who are raising young children in NYC”). Later, during the face-to-face visit, parents were provided with more detailed information about the rationale for the study, including the focus of the intervention, random assignment, the control condition, length and extent of study involvement, confidentiality, mandates for reporting child abuse or neglect, and other human subjects issues. Study procedures were approved by the Institutional Review Boards of New York State Psychiatric Institute/Columbia University and Presbyterian Hospital.

Preschoolers meeting Diagnostic and Statistical Manual of Mental Disorders (3rd ed., revised [DSM–III–R]; American Psychiatric Association, 1987) diagnostic criteria for CD and pervasive developmental disorders (assessed with a clinical interview by a child psychologist or psychiatrist with the parent) and severe to profound mental retardation (assessed through the Stanford–Binet Intelligence Scale, fourth edition, with the child, and the Vineland Adaptive Behavior Scales interview with the parent) were excluded. Parents with current substance-use disorders, psychotic disorders, or medical conditions that would preclude study participation (ascertained with the Structured Clinical Interview for DSM–III–R [SCID]; Spitzer, Williams, Gibbon, & First, 1992) were excluded. Index relatives recruited from the outpatient clinic who did not meet diagnostic criteria for CD (or ODD if under 7), according to the Parent as Respondent Informant Schedule (Kentgen, Klein, Mannuzza, & Davies, 1997) were excluded.

Sixty-two potentially eligible families were contacted by telephone. Fifty out of 62 (80%) were deemed eligible by phone screen; 40 out of 50 (80%) provided informed consent. Thirty out of 40 (75%) completed the assessment battery and were randomized, 16 to intervention and 14 to control. The final sample of 30 preschoolers included 19 (63%) boys and 11 (37%) girls, with a mean age of 44 months (SD = 10). Sixty-seven percent were African American and 33% were Hispanic American.

**Procedure**

After completing the baseline assessment (Time 1), families were randomized to the prevention program or to a no-intervention condition for 1 year. Following the intervention, families completed a post-intervention assessment (Time 2) and a 6-month follow-up assessment (Time 3). Parents in both conditions received $50 for each assessment and $10 for round-trip transportation to study offices. Intervention families received $10 for transportation costs for each group session, and meals were provided.

**The prevention program.** Based on the risk factors associated with familial antisocial behavior and low-income, urban residence, we anticipated that parents would be stressed and isolated and have compromised parenting practices. We expected that preschoolers would vary in their functional status but would not have CD at this early age. Finally, we expected that families would be exposed to community violence and the antisocial behavior, values, and peers of the index relative.

With these risk factors in mind, we developed a cognitive–behavioral intervention aimed at promoting positive parenting practices and parent–child interactions with the goal of preventing conduct problems. The intervention combined the Incredible Years Parenting Program, an empirically supported parent-training program (Webster-Stratton, 1987), with additional components and strategies to address some of the individual, parental, familial, and community risk factors experienced by this vulnerable group of children and parents.

The preventive intervention program was designed to promote parenting practices and child social competence to reduce risk for the development of early onset conduct problems and related impairments. The intervention was consistent with social interactional learning and transactional developmental models of con-
duct problems. The goal was to help parents to develop more positive relations with their children; use non-physical, consistent, and developmentally appropriate disciplinary strategies; and promote children’s positive peer relations and social competence. The program consisted of parenting groups, child groups, parent and child group activities, and home visits. Parents participated in 50 group sessions held twice a week over a 9-month period and received 10 individualized home visits over a 1-year period.

All intervention components were fully manualized after a pre-study application of the program with six families conducted by the first author to refine the intervention. The program, its theoretical foundations, and the roles and training of the intervention team have been described elsewhere (Miller, 1994a, 1994b, 1998).

**Group leaders and home visitors.** Three interventionists were trained by the first author to lead parent and child groups and conduct home visits. Training included learning the program manuals and 30 hr of didactics. In addition, the first parent group was co-led by the first author. Subsequent groups were observed by the first author, either live or via audiotape. The three interventionists were female; two were Hispanic and bilingual and one was African American. One parent group leader was a PhD candidate in psychology and the other was enrolled in a master’s of social work program. The child group leader had a bachelor’s degree and extensive child care experience and was assisted by one or two research assistants. The child group leader together with a parent group leader conducted the home visits.

**Intervention integrity and supervision.** Interventionists completed integrity checklists regarding both content and process for the parent groups, child groups, and home visits. Checklists for the parenting groups were based on the checklists that accompany the Incredible Years series. The parenting groups covered all the videotape vignettes and topics described in the Incredible Years manual but allowed more time to cover each topic (approximately two to three sessions for each session described in the manual). New integrity checklists were developed for the child groups, parent–child interactions, and home visits. The first author conducted weekly supervision of all staff. During supervision, checklists for all components and audiotapecs of groups were reviewed.

**Parenting groups.** Parenting groups utilized the Parent Program from the Incredible Years Training Series, a fully manualized videotape modeling program. The program has been used successfully as a clinic-based treatment for children with behavior problems (Webster-Stratton & Hammond, 1997; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989) and as a prevention program for Head Start families (Webster-Stratton, 1998; Webster-Stratton et al., 2001). Program content focuses on strengthening parenting competencies, such as reinforcing positive child behavior, and using consistent, nonphysical discipline for noncompliance and aggression. Two leaders conducted 90-min groups with five to six parents in accordance with a collaborative approach (Webster-Stratton & Herbert, 1993). Leaders used videotape vignettes of parents in a variety of common parenting situations as a starting point for discussions, problem solving, and role plays about parenting issues. The number and frequency of sessions, number of participants per group, homework assignments, and handouts were adapted for this study. Integrity checklists on content and process for parent groups provided as part of the evidence-based Incredible Years Training Series were employed.

**Child groups.** The primary goal of the child groups was to promote children’s social competence. Children participated in 90-min peer playgroups where group leaders taught specific social skills (e.g., asking for help, sharing, taking turns) detailed in the child group manual and provided direct reinforcement of children’s positive behaviors and consequences for negative behaviors. During selected groups, parents observed through a one-way mirror the strategies employed by the child group leaders as well as their preschooler’s peer play skills. After every group and during home visits, leaders conveyed to parents their own observations of child strengths and responses to adult attention, direction, and disciplinary techniques to facilitate parents’ implementation of behavioral strategies learned in the parenting group.

**Parent and child activities.** For the last 30 min of the parent and child groups, parent–child dyads participated in arts and crafts, reading, and free-play activities. Group leaders helped parents to practice parenting skills (e.g., labeled praise for prosocial behavior) through a coaching model. Group leaders modeled, directed, reflected, summarized, and reinforced positive parenting strategies. In addition, the study had a “lending library” from which preschoolers selected a book to take home for the week; parents were encouraged to read to their children every day.

**Home visits.** Home visits were designed to help parents generalize the skills learned in the parenting group to the home setting. A parent group leader and a child group leader jointly visited the family home twice a month for 90-min sessions. Home visitors followed a curriculum corresponding to each parenting skill learned in the group setting. For example, the group sessions on parent–child play were reinforced with home visits during which parents were coached.
on play skills during parent–child interactions. The home visits created opportunities for learning in the home environment and developing and implementing specific behavior plans in the home setting (e.g., placement of a time-out chair in a crowded apartment, creating a safe environment conducive for parent–child play). In addition, home visits offered opportunities for support to parents, including identification of unmet needs and linkage to community resources and services.

The control condition. Controls received no intervention and no contact beyond assessments. A no-intervention control condition was justified because children were not targeted based on behavior problems and parents were not seeking help for their children or themselves. If a parent expressed concern about the child’s behavior either during the assessment period or during the periods between assessments, appropriate referrals were made. No referrals were made after the follow-up assessment.

Measures

Baseline characteristics. The Family Status Interview (Wasserman et al., 1996) is a structured interview conducted with the parent at baseline to assess family demographics. Current (last month) and lifetime psychiatric diagnoses in the parents were assessed by a trained psychologist or psychiatrist with the SCID (Spitzer et al., 1992). The complete interview, comprising modules on Anxiety, Mood, Substance, Eating, and Somatization Disorders and screen for Psychotic Disorders, was conducted. Parents were also assessed for Antisocial Personality Disorder and history of CD with the SCID–II (First, Spitzer, Gibbon, & Williams, 1995; First, Spitzer, Gibbon, Williams, Davies, et al., 1995). Parental stress was evaluated with the Parenting Stress Index (Abidin, 1983), and parent’s IQ was estimated with the Vocabulary and Block Design subscales of the Wechsler Adult Intelligence Scale—Revised to provide descriptive information on parent intellectual functioning (Wechsler, 1981). The Parent as Respondent Informant Schedule (Kentgen et al., 1997) was used to assess lifetime disorders in the index relatives. We included modules for CD, ODD, ADHD, and Substance Abuse. Reliability of the disruptive disorders has been established (Kentgen et al., 1997).

Parent and child behavior. Parenting practices were assessed using videotaped parent–child interaction sessions coded with the Global Impressions of Parent–Child Interactions (GIPCI; Miller, 1997) and the Dyadic Parent–Child Interaction Coding System (DPICS; Eyberg & Robinson, 1983). Parent–child dyads were videotaped in 15-min sessions consisting of three semistructured situations that varied in the amount of parental control elicited: child-directed free play (7 min), parent-directed puzzle completion (5 min), and parent-directed clean-up (3 min). Sessions were conducted in a playroom equipped with a video recorder. Raters blinded to group status watched the entire 15-min tape and coded parental Responsiveness and Affection using the GIPCI scale. A randomly selected one third of tapes were coded by a second rater, and interclass correlation coefficients were used to estimate interrater agreement (.70 for the GIPCI Responsiveness and Affection score).

After the tapes were coded with the GIPCI, parenting behaviors across the three play segments were coded using the DPICS on the following parent behaviors: acknowledgment, critical statements, physical negative, physical positive, unlabeled praise, labeled praise, descriptive and reflective questions and statements, indirect commands, and direct commands. Interrater reliabilities ranged from a low interclass correlation coefficient of .62 for descriptive and reflective questions and statements to a high of .97 for physical positive. The mean interclass correlation coefficient for individually coded DPICS parent behaviors was .80. Acknowledgments and descriptive and reflective questions and statements were eliminated due to inadequate reliability. Consistent with the approach employed by others (Webster-Stratton, 1998), we created a Positive Parenting summary score by combining physical positive, unlabeled praise, and labeled praise, and a Negative Parenting summary score by combining critical statements and physical negative. We did not examine intervention effects on commands, because the interpretation of changes on this variable would require detailed information about context.

Child behavior problems were assessed with the age-appropriate version of the Child Behavior Checklist (CBCL), a widely used measure of behavior problems (Achenbach, 1994; Achenbach, Edelbrock, & Howell, 1987). In both versions, the parent rates a list of problem behaviors as 0 (not true), 1 (somewhat true), or 2 (very true) of her child. Reliability and validity of these instruments are well established (Achenbach, 1994). Raw scores were converted into standard T scores based on normative data. The Externalizing and Internalizing T scores were used. We used an Externalizing T score of 70 or above, as suggested by Achenbach (1994), as a cutoff to indicate scores within the clinical range. We used a lower threshold of 62 to indicate elevated or borderline clinical scores, consistent with the work of other studies of preschoolers (Webster-Stratton, 1998).

Attendance and satisfaction. The number of group and home visits received were recorded for families in the intervention. At the final parenting group session, parents completed a Consumer Satisfaction Questionnaire (Webster-Stratton, 1989). Parents rated the
overall program (e.g., “How confident are you that you will be able to manage future behavior problems in the home using what you learned from this program?”); difficulty and usefulness of different program methods, such as videotapes, group discussion, practicing skills at home; difficulty and usefulness of specific parenting techniques such as play, praise, ignoring, and time-out; and effectiveness of the group leaders in terms of teaching ability, preparation, empathy, and overall likeability. Questions were rated on 7-point Likert scales (e.g., questions on program difficulty were rated as 1 [extremely difficult] to 7 [extremely easy]). In addition, parents answered open-ended questions regarding the most and least helpful aspects of the program and suggestions for program improvement.

Data Analysis

To assess whether randomization had been effective, analyses of baseline characteristics of the index relatives, the target children, and the parents were conducted. Baseline scores on key demographic characteristics, risk factors, and parenting and child outcomes were evaluated using Fisher’s exact tests for categorical variables or t tests for continuous variables. Descriptive statistics are reported for attendance and satisfaction with the intervention. Retention rates across conditions were evaluated by Fisher’s exact tests. Intervention effects on parenting were evaluated with repeated-measures analyses of variance with condition (experimental vs. control) as the between-participants factor, time as the within-participants factor, and the measure of parenting practices as the dependent variable. Random regression analyses were also employed to allow for the inclusion of children and parents with missing data. In addition to accommodating participants with incomplete data, random regression models allow for the modeling of person-specific effects and serial correlation within participants, factors that play a role in the longitudinal response process (Gibbons et al., 1993). We use \( \eta^2 \) as a measure of effect size appropriate for analyses of Group × Time interactions. According to Cohen (1988), the following conventions apply to \( \eta^2 \): small effect \( \geq .0099 \), medium effect \( \geq .0588 \), large effect \( \geq .1379 \). In this pilot study, assuming no attrition, we had less than 60% power to detect large Group × Time interactions, and only 26% power to detect medium effects, two-tailed. Therefore, although significance tests were conducted for completeness, results were interpreted based on observed effect sizes.

Results

Characteristics of Index Relatives

Table 1 presents characteristics of the index relatives of study preschoolers by recruitment source. With two exceptions, relatives identified through the family court and outpatient clinic were siblings of the preschoolers, whereas those identified through the aftercare program were the preschoolers’ noncustodial fathers or uncles. All but one index relative was male, and the majority met diagnostic criteria for ODD or CD based on diagnostic interviews with the parent. The majority of adult index relatives incarcerated for first-time offenses had criminal convictions related to controlled substances, where-

<table>
<thead>
<tr>
<th>Characteristic of Relative</th>
<th>Clinic (n = 3)</th>
<th>Family Court (n = 19)</th>
<th>Aftercare (n = 8)</th>
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</thead>
<tbody>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>7.67</td>
<td>15.58</td>
<td>32.60</td>
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<tr>
<td>SD</td>
<td>3.8</td>
<td>0.9</td>
<td>5.5</td>
</tr>
<tr>
<td>Range</td>
<td>5–12</td>
<td>14–17</td>
<td>27–38</td>
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<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
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<tr>
<td>Relationship to target</td>
<td></td>
<td></td>
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<tr>
<td>Sibling</td>
<td>3</td>
<td>100</td>
<td>17</td>
</tr>
<tr>
<td>Cousin or uncle</td>
<td>0</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Father</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>DSM–III–R diagnosis</td>
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<td></td>
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<tr>
<td>CD or ODD</td>
<td>3</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>ADHD</td>
<td>2</td>
<td>67</td>
<td>6</td>
</tr>
<tr>
<td>Alcohol/substance</td>
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<td>2</td>
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<tr>
<td>Convicted offense</td>
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<td></td>
</tr>
<tr>
<td>Substance offense</td>
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<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Property offense</td>
<td>NR</td>
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</tr>
<tr>
<td>Unknown</td>
<td>NR</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: CD = conduct disorder; ODD = oppositional defiant disorder; ADHD = attention deficit hyperactivity disorder; NA = not assessed; NR = not relevant; DSM–III–R = Diagnostic and Statistical Manual of Mental Disorders (3rd ed., American Psychological Association, 1980).
as the adolescents with family court records were as likely to have committed robbery or a violent crime as a substance-related offense.

**Characteristics of Preschoolers**

Table 2 presents characteristics of the preschoolers. Nearly one third had lived in a homeless or domestic violence shelter. The majority was not attending preschool or school programs at study entry, although all were eligible for Head Start. The mean child IQ was 81.6 ($SD = 22$). At study entry, 25% of preschoolers were rated by their parents in the elevated range (62 and above) on the Externalizing scale of the CBCL; 10% were rated in the clinical range.

**Characteristics of Mothers**

Almost all the caregivers (90%) were the preschoolers’ biological mothers; 10% were grandmothers. For simplicity’s sake, we refer to all caregivers as mothers. The majority of mothers (60%) were neither married nor living with a partner, and more than 70% were on public assistance. Based on SCID interviews, 66% of (19 out of 29) mothers had a lifetime history of major depressive disorder, 21% (6 out of 29) of anxiety disorder, and 28% (8 out of 29) of substance-use disorder. Current disorders were as follows: 28% (8 out of 29) with major depressive disorder (an additional 7% [2 out of 29] with subthreshold major depressive disorder) and 17% (5 out of 29) with an anxiety disorder (2 with panic disorder, 2 with generalized anxiety disorder, and 1 with obsessive–compulsive disorder). None met criteria for a current substance-use disorder because this was an exclusionary criterion. In addition, 5 mothers had current symptoms of antisocial personality disorder, although none met diagnostic criteria; 4 of 5 endorsed aggression (i.e., repeated fights and assaults) as one of the current symptoms. Four mothers reported a positive history of antisocial behaviors; all had been truant in adolescence. In total, nearly 25% (7 out of 29) were positive for either current or lifetime antisocial behavior. In sum, 21 parents (72%) met criteria for a current or lifetime diagnosis of any disorder. Twelve parents (41%) had a current disorder; 10 had one disorder, and 2 had at least two disorders.

The estimated mean IQ for the mothers was 85 ($SD = 15$). The mean level of stress rated by parents placed the sample at the 64th percentile on the Parenting Stress Index “Parent” domain and at the 75th percentile on the Parenting Stress Index “Life Stress” domain relative to the normative sample (Abidin, 1990).

**Baseline Equivalence of Intervention and Control Groups**

There were no significant differences between conditions for any measures of preschoolers’ or parents’ demographic or clinical characteristics, including parenting practices and child behavior. (See Table 2 for demographic characteristics and Table 3 for baseline scores on parent and child outcomes.)

<table>
<thead>
<tr>
<th>Table 2. Families’ Demographic Characteristics</th>
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<tr>
<td><strong>Characteristics of Child</strong></td>
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<td></td>
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<tr>
<td>Age (months)</td>
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<td>Sex (male)</td>
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<tr>
<td>n %</td>
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<tr>
<td>Race/ethnicity</td>
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<tr>
<td>African American</td>
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<tr>
<td>Hispanic American</td>
</tr>
<tr>
<td>Ever in foster care</td>
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<tr>
<td>Ever in shelter</td>
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<tr>
<td>Does not live with both biological parents</td>
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<tr>
<td>Not in school</td>
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<tr>
<td><strong>Characteristics of Mother</strong></td>
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<tr>
<td></td>
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<tr>
<td>Age (years)</td>
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<tr>
<td>Education (grade)</td>
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<td>n %</td>
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<tr>
<td>Lives with partner</td>
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<tr>
<td>Receives public assistance</td>
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<tr>
<td>Unemployed</td>
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*Note: No significant group differences.*
Attendance and Satisfaction

Attendance rates for the intervention parent and child groups averaged 55% (M = 28/50), ranging from 0 to 50 sessions attended. One parent never attended, and two attended fewer than five sessions. All 10 home sessions were delivered to the 13 families who attended five or more group sessions. For those who completed at least 10% of the program (i.e., attended 5 or more sessions and received 10 home visits), satisfaction with the program was very high. On a 7-point scale, the average rating of the material covered in the program was 6 (useful) to 7 (extremely useful), and 6 (easy) to 7 (extremely easy) to implement. Only two parents rated one or more aspects of the program (e.g., time-out, limit setting) as 3 (somewhat difficult) or 2 (difficult) to implement. None rated the usefulness of any aspect of the program as below 4 (neutral). Parents rated the videotapes and group discussions as the most helpful. Many parents commented that they would prefer a program that was longer, and some requested a group for their older children. All parents rated their satisfaction with their child’s progress as 6 (satisfied) to 7 (very satisfied), and all rated whether they would recommend the program to a friend as 6 (recommend) or 7 (strongly recommend).

Retention Rates Across Conditions

All 16 families (100%) in the intervention condition were retained for the post-intervention assessment (Time 2), including the 3 families who attended fewer than five group sessions. Twelve of 14 control families (86%) were reassessed at post-intervention. Six months later (Time 3), 14 of 16 (88%) intervention families participated in the follow-up, but only 6 of 14 (43%) control families did so. Although the rates at post-intervention (Time 2) were not significantly different, the rates at follow-up (Time 3) were (Fisher’s exact p = .02). We examined baseline characteristics of those children who were retained at follow-up versus those who were not. These groups differed (p ≤ .10) on caregiver’s education and age. Parents who dropped out of the study by follow-up were more likely than those who were retained to have higher education (11 years vs. 10 years) and to be older (39 years vs. 33 years). There were no significant differences on child age, CBCL scores, employment, public assistance, or marital/partner status.

Intervention Effects on Parents and Children

As shown in Table 3, there was a significant Group × Time interaction effect for parental responsiveness and affection during parent–child play interactions, indicating a positive intervention effect. The size of the effect (eta^2 = .167) may be considered large (Cohen, 1988). Intervention parents showed increased responsiveness over time, whereas controls showed decreases relative to baseline. The Group × Time interaction for the microanalytic behavioral counts of positive parenting behaviors (DPICS ratings) was not significant; however, a medium effect (eta^2 = .075) was observed. Patterns of pre- to post-intervention change were in the expected direction, with the intervention group displaying increased praise and positive physical contact and the control group showing decreased positive parenting behaviors. For negative parenting, parents in both groups increased approximately one half a standard deviation from pre- to post-intervention, with controls increasing from .39 to .68 and intervention parents from .55 to .85. Therefore, there was no indication of an intervention effect on criticism and physical negative behavior during parent–child play. All analyses were repeated using random regression models to allow for children with missing data to be included. There was limited missing data, and the results were highly consistent with the repeated measures analyses.

Table 3. Means and Standard Deviations of Observed Parenting Practices and Parent-Rated Child Behavior for Control and Intervention Conditions

<table>
<thead>
<tr>
<th>Group</th>
<th>Control</th>
<th>Intervention</th>
<th>Control</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Post</td>
<td>Baseline</td>
<td>Post</td>
</tr>
<tr>
<td>Observed parenting practices</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsiveness and affection</td>
<td>3.62 .68</td>
<td>3.23 .73</td>
<td>3.44 .88</td>
<td>3.88 .95</td>
</tr>
<tr>
<td>Positive parenting</td>
<td>.76 .79</td>
<td>.41 .45</td>
<td>.73 .43</td>
<td>.81 .81</td>
</tr>
<tr>
<td>Child behavior problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Externalizing</td>
<td>51.17 10.9</td>
<td>55.08 9.1</td>
<td>54.94 10.1</td>
<td>51.31 12.6</td>
</tr>
<tr>
<td>Internalizing</td>
<td>49.33 12.1</td>
<td>49.75 11.3</td>
<td>53.44 10.9</td>
<td>52.44 10.1</td>
</tr>
</tbody>
</table>

*p < .05.
As seen in Table 3, there was a significant Group × Time interaction for parent-reported child externalizing behavior, with preschoolers in the intervention group showing decreases over time, whereas those in the control group showed increases over time. The effect (eta² = .141) is considered large (Cohen, 1988) and appears specific to externalizing behaviors, because a similar effect was not observed for internalizing behaviors. Again, when analyses were repeated using random regression models, the results were equivalent.

To examine meaningful functional changes on externalizing behavior, children were categorized into groups with baseline CBCL Externalizing T scores <62 (three fourths of the sample) and ≥62 (top fourth of the sample). These cutoff scores are similar to those used by Webster-Stratton (1998) and others to indicate elevated or borderline clinical scores. From Time 1 to Time 2, the intervention group showed no change in the rate of children with elevated scores (25% at both time points), whereas the rate increased in the control group from 25% to 42%. Of the children initially rated as nonproblematic by their mothers, only 1 of the 12 children (8%) in the intervention was rated as having problems post-intervention, compared to 3 of 9 children (33%) in the control group.

**Child Behavior at 6-Month Follow-Up**

Random regression analyses were conducted to allow for children with missing data at follow-up (Time 3) to be included. However, these analyses should be viewed with caution because they are based on a small number of children (n = 6) in the control condition at follow-up. There was a marginally significant Group × Time interaction (F = 2.46, p = .098) for CBCL Externalizing scores. The pattern over time was for the intervention group to remain relatively stable (pre = 54, post = 51, follow-up = 54), whereas the control group continued to increase over time (pre = 52, post = 55, follow-up = 59).

**Discussion**

Low-income, urban preschoolers with a family history of antisocial behavior are at high risk for developing CDs. In addition to the general environmental risks associated with living in low-income, urban communities, these children bear additional risk burdens associated with possible genetic vulnerability, coercive interactions with family members with antisocial behavior, deviant role models, and compromised parenting practices. There is evidence from randomized trials that preventive interventions can be effective in promoting socioemotional development and preventing conduct problems in low-income preschoolers already enrolled in Head Start (Webster-Stratton, 1998). However, no previous studies have targeted preschoolers at familial and neighborhood risk for conduct problems. This pilot provides support for the feasibility, acceptability, and potential efficacy of a family-based intervention program as well as for the acceptability of the randomization procedures in the targeted population. At the same time, it points to the failure of a no-contact control condition for retaining high-risk families in studies with long-term follow-up designs.

Three different recruitment sources and strategies were used to identify low-income, urban preschoolers and parents based on family history of antisocial behavior. Recruitment of adjudicated siblings through family court records had the highest yield, provided the most homogenous group of index relatives, and potentially allows for a full description of the targeted index population. Furthermore, parents of adolescents who had recently been adjudicated appeared especially interested in preventive intervention for their younger children. Although their preschoolers were not yet exhibiting problematic behavior, parents who had experienced the legal and social consequences of a child’s antisocial behavior were motivated to prevent a similar fate for their young children. Throughout the intervention, parents expressed regret at not having had access to a similar program that might have prevented their adolescent from court involvement.

Findings on demographic and clinical characteristics suggest that our approach to sample selection was successful in identifying children at high risk for antisocial behavior. The sample had high rates of various family and environmental risk factors that are predictive of later delinquency, including parental antisocial behavior, parental history of substance use, low SES, and single-parent status (Loeber, Green, Keenan, & Lahey, 1995). Furthermore, the feasibility of engaging parents of children who are not enrolled in Head Start or preschool programs is important because these unaffiliated families are likely to be underserved. These findings add to the growing literature suggesting that families from socioeconomically disadvantaged backgrounds, and from diverse ethnic groups, can be successfully engaged in family-based preventive intervention (Reid, Webster-Stratton, & Beauchaine, 2001; Spoth, Goldberg, & Redmond, 1999; Webster-Stratton, 1998; Webster-Stratton et al., 2001).

The results suggest that it is feasible to deliver an intensive home- and clinic-based program to this high-risk group. Parents assigned to intervention attended the program at relatively high rates, especially given the high level of impaired functioning, and parents were highly satisfied with the intervention. The approach to intervention appears adequate for parents with high rates of psychopathology and stress.

The poor retention rate with the controls relative to the intervention families indicates that a no-contact condition is not adequate as a control in the implemen-
tation of a long-term intervention trial. Although it was justifiable to include no intervention, the minimal contact provided at assessments and payment for assessments was not sufficient to maintain the families in the study group. Additional procedures, such as more regular telephone contact, mailings, and provision of referrals, general resources, and supports are required to keep families engaged.

Despite the many challenges faced by these high-risk families, findings suggest that the program may lead to meaningful changes in positive parenting practices and thus provides a chance for influencing the development of high-risk preschoolers. The intervention led to changes in parental responsiveness during parent–child interactions according to observations by blinded raters. This significant effect is functionally meaningful and not influenced by parental reporting biases. Although intervention parents increased in responsiveness over time, parents who received no attention may actually worsen in this regard. It is possible that as children at high risk become more difficult to manage as they develop, parents with limited resources and high levels of stress may become less responsive. Additionally, deterioration in the quality of the parent–child relationship may also be the result of the failure of highly stressed parents to deal adequately with the typical child-rearing challenges of the preschool period (e.g., noncompliance, defiance, and assertion of independence).

The intervention did not appear to affect critical statements and negative physical behavior within parent–child play interactions. In both conditions, these behaviors appear to increase over time. It should be noted, however, that the overall rates of these behaviors as observed during play interactions in the laboratory were relatively low. Therefore, it is not clear whether these observed increases are clinically meaningful. It may be that these behaviors are better assessed within a naturalistic environment (e.g., the home) where there might be greater opportunities to observe such socially undesirable behaviors.

Because the development of conduct problems in preschoolers at familial risk has not been studied previously, it is difficult to know when to expect the emergence of problem behaviors in controls. Although differential attrition places the follow-up findings in question, the pattern over time suggests that without intervention, problems are likely to emerge by age 5. The preschool period may be an important time for intervention for high-risk children for several reasons. First, key components of affect regulation and behavioral control are emerging and becoming organized (Cicchetti, Rogosch, & Toth, 2000; Kochanska, Murray, & Coy, 1997). Preschoolers have emerging language skills, conscience, and internalization capabilities that are associated with the ability to inhibit behavior, follow rules, and manage negative emotions.

Second, the typical escalation of aggressive and disobedient behavior during the second year and relative decline by the fifth year suggests that the preschool period may be a “sensitive period” for the maintenance and acceleration of these behaviors. Third, even if some preschoolers fail to outgrow normative noncompliance, tantrums, and aggression, these behaviors have not yet stabilized and therefore remain relatively malleable and open to intervention. Finally, secondary consequences of stable conduct problems that are likely to maintain or worsen misbehavior, such as academic underachievement, peer rejection, and negative expectations by teachers, have not yet come into play (Kraatz Keiley, Bates, Dodge, & Pettit, 2000).

In addition to the problems with differential attrition across conditions discussed here, several limitations of this pilot study should be noted. We did not include measures in several areas that might have contributed further to interpretation of the results. First, we did not include a parent-report measure of parenting practices. Such information would have been useful in interpreting the breadth of the impact of the intervention, especially in the area of harsh physical discipline. Second, although we assessed parental satisfaction with regard to the parenting groups, we did not assess the home-visiting component separately and therefore cannot make specific conclusions about its acceptability. Third, although we conducted careful semistructured clinical interviews of parental psychopathology at baseline to describe the sample, we failed to evaluate symptoms of depression or anxiety post-intervention. Finally, although the sample size was adequate to address the primary questions of the pilot, the small numbers placed limits on our ability to explore issues of dose effects or possible moderators of intervention (e.g., parental psychopathology, child sex, and IQ).

In summary, findings from this pilot suggest that it is possible to attract and engage low-income, urban parents of preschoolers with family histories of antisocial behavior in a preventive intervention study. Families accepted randomization, but procedures for maintaining a no-intervention control group over an 18-month period were not adequate. Families were highly satisfied with the program content and delivery. Findings on program feasibility and acceptability are encouraging for interventionists and providers interested in serving similar populations. Based on this pilot study, a full-scale randomized prevention trial with preschool-age siblings of adjudicated youth is currently underway.

References


Received May 16, 2002
Accepted November 20, 2002