

Preventing Conduct Problems in Head Start Children: Strengthening Parenting Competencies

Carolyn Webster-Stratton
University of Washington

The effectiveness of a parenting program with 394 Head Start mothers was examined. Nine Head Start centers were randomly assigned to either an experimental condition in which parents, teachers, and family service workers participated in the intervention or a control condition in which the regular Head Start program was offered. Mothers in the intervention group were observed at home to have significantly fewer critical remarks and commands, to use less harsh discipline, and to be more positive and competent in their parenting when compared with control mothers. Teachers reported that intervention mothers were more involved in their children's education and that their children were more socially competent. Intervention children were observed to exhibit significantly fewer conduct problems, less noncompliance, less negative affect, and more positive affect than control children. One year later most of the improvements were maintained.

The incidence of oppositional defiant disorder (ODD) and early onset conduct disorder (CD) in young children is disturbing: Studies have reported that 7–25% of preschool children meet the diagnostic criteria for ODD, with the highest rates found in low-income welfare families (Offord, Alder, & Boyle, 1986; Offord, Boyle, & Szatmari, 1987). These findings are troubling because early onset conduct problems (i.e., high rates of oppositional defiant, aggressive, and noncompliant behaviors in the preschool years) are fairly stable and predict not only problems in school but also serious health and behavioral problems in adolescence—drug abuse, depression, juvenile delinquency, and school dropout (Campbell, 1991; Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986; Egeland, Kalloske, Gottesman, & Erickson, 1990; Rabiner, Keane, & Mackinnon, in press; Rose, Rose, & Feldman, 1989; Wadsworth, 1976; White, Moffit, Earls, & Robins, 1990).

Research suggests that certain family characteristics put children at particular risk for developing conduct problems—namely, low income, low education, teenage pregnancy, isolation, high levels of stress, single parenthood, parental psychiatric illness, parental criminal history or substance abuse, and high

levels of marital discord and depression (Webster-Stratton, 1990). Children whose parents are inconsistent in their discipline, physically abusive, or highly critical and hostile are also at greater risk for CD (Patterson & Stouthamer-Loeber, 1984; Rabiner et al., in press; Reid, Taplin, & Loeber, 1981), as are children whose parents are disengaged from their children's school experiences and provide little cognitive stimulation (Coie, Lochman, Terry, & Hyman, in press; Haber, 1987; Hawkins, Catalano, & Miller, 1992). Moreover, the risk of a child developing conduct problems seems to increase exponentially with the child's exposure to each additional risk factor (Coie et al., 1993; Rabiner et al., in press; Rutter, 1980).

Children in the Head Start population are at higher than average risk for developing conduct problems because the risk factors just mentioned are present at higher than average rates in these socioeconomically deprived families (McLoyd, 1990). In addition to parent and family risk factors, child risk factors have been implicated in child conduct disorders. Studies indicate that early academic difficulties, such as reading deficits and cognitive language delays, are associated with conduct problems (Schonfeld, Shaffer, O'Connor, & Portnoy, 1988; Sturge, 1982), as are poor social skills and poor problem solving (Asarnov & Callan, 1985; Richard & Dodge, 1982; Rubin & Krasnor, 1986). Prior research with Head Start has emphasized the impact of its programs on children's cognitive development and academic readiness. However, few studies have examined Head Start's potential effects on enhancing children's social competence (Hubbell, 1983; Zigler & Styfco, 1993) or reducing conduct problems.

Furthermore, despite Head Start's founding philosophy of strong parental involvement in day-to-day operations (Zigler & Styfco, 1993), few Head Start studies have gone beyond its impact on the child to examine the program's impact on parents. In those studies that have compared the effects of parental involvement in Head Start—defined as parents' participation in their children's classroom or on parent advisory committees—parents who were more involved reported more self-confidence, increased internal control, increased self-esteem, increased

This research was supported by the Administration for Children and Families, a Head Start Partnership Grant, and Research Scientist Development Award MH00988-05 from the National Institute of Mental Health. I am grateful to a number of people who assisted in the extensive work related to data collection and intervention implementation: Kate Calhoun, Doris Harkness, Karrin Grutz, Carole Hooven, Nat Houtz, Brooke Randall, Susan Reanier, Kathy Rogers, and Aaron Wallis. Special appreciation goes to Lois Hancock for her superb organizational skills in directing this large project and to Mary Hammond for statistical analyses. Finally, I am indebted to the Puget Sound Head Start staff and administrators, particularly the family service workers, whose dedication and commitment to families made this program possible.

Correspondence concerning this article should be addressed to Carolyn Webster-Stratton, Parenting Clinic, Box 354801, School of Nursing, University of Washington, Seattle, Washington 98195. Electronic mail may be sent to csw@u.washington.edu.

community involvement, and decreased isolation (Adams, 1976; Adkins, 1971; Parker & Asher, 1987; Zahn, McKnew, Cummings, Davenport, & Radke, 1984; Zigler & Styfco, 1993). However, these studies are beset with methodological problems that limit their usefulness. For example, studies concerning parent outcomes did not use random assignment procedures, making it impossible to determine whether the significant effects were due to characteristics of the parents who chose to be more involved or due to their Head Start involvement per se. Moreover, accounts were frequently retrospective, failed to define parent involvement objectively, and did not use reliable and valid outcome measures. Observational methods of assessing parental behaviors were rarely used. Sample sizes were also small, usually limited to one Head Start center. There appears to be no existing research on Head Start efforts to promote parenting skills and to strengthen parent mutual support networks; whether Head Start programs can prevent and reduce children's conduct problems or strengthen their social skills is as yet unknown.

The present study examined the effectiveness of supplementing an established theory-based parent training program with teacher training and using the combination as a selective prevention intervention (Medicine, 1994) with a sample of Head Start parents and their 4-year-old children. Developed by Carolyn Webster-Stratton, the PARTNERS intervention is guided by developmental theory concerning the role of multiple interacting risk factors (aspects of the child, family, and school) in the development of conduct problems. Its proven effectiveness with clinically referred young children with identified conduct problems (Webster-Stratton, 1994; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989) suggested its potential as a community-based, early prevention program designed to prevent the development of ODD and CD in the Head Start population. The PARTNERS intervention supplemented the Head Start program, which focuses primarily on children's academic skills, with the following: (a) parent training (delivered by trained family service workers [FSWs]), which focused on strengthening parenting competence and fostering parents' involvement in children's Head Start preschool experiences, and (b) teacher training, which focused on supporting parental involvement in the classroom, promoting consistency from home to school, and strengthening teachers' behavior management skills. I hypothesized that PARTNERS would reduce conduct problems and strengthen the protective factors that help prevent conduct problems; that is, families that participated in PARTNERS training would show increased parenting competence, greater school involvement, increased child social competence, and decreased conduct problems in comparison with control families.

Method

Nine Head Start centers (64 classes) were randomly assigned (by lottery) to either (a) an experimental condition in which parents, teachers, and FSWs in Head Start participated in the intervention (PARTNERS) or (b) a control condition in which parents, teachers, and FSWs participated in the regular centered-based Head Start program (CONTROL). These nine centers were chosen from within one large urban Head Start district (representing six school districts) on the basis of their similarity in terms of ethnic minority percentages, teachers' qualifications, FSWs' qualifications and education, number of classrooms,

number of children, children's enrollment age, and length of Head Start class (4 hr per day). Centers were also chosen on the basis of their willingness to participate in the study and to be randomly assigned to either the intervention or the control group. Only one center that was invited to participate refused.

Procedures

Families entered the study in two cohorts, one in the fall of 1993 and the second in the fall of 1994. The first cohort involved random assignment of three Head Start centers to the experimental intervention condition (PARTNERS) and two centers to their usual Head Start services (CONTROL). In the 2nd year, the two control centers were assigned to the intervention condition and two new centers were assigned to the control condition (and promised intervention in the 3rd year). The three centers that were originally assigned to the intervention condition remained in that condition in the 2nd year because teachers had been trained as a result of the intervention. For this reason, there were more families in the experimental condition than in the control condition. However, children enrolled in Head Start in this district participated only for 1 year; consequently, no families from Cohort 1 were part of Cohort 2.

Recruitment of families began when families first inquired about enrolling in Head Start and continued throughout the fall orientations at the schools. Parents were told about the study, given brochures, and asked to participate by the Head Start FSWs and teachers. Families indicated interest in finding out more about the study by signing an interest form. Then they were contacted by phone, and a home visit was arranged. At the home visit, the study was explained in more detail. Those who remained interested signed the consent form.

In the fall of each year, both cohorts completed identical baseline assessments consisting of home observations, parent interviews, and teacher and parent questionnaires. In January of each year, teachers from the experimental centers underwent a 2-day training workshop, and 25 Head Start FSWs completed their 3-day parent group leader training. Next, parents began their 8-9 week PARTNERS program. FSWs and one of the research project's parent group leaders led 31 different parent groups. In the spring, at the end of each school year, the families from the experimental and control centers were reassessed using the same measures. Teachers also completed questionnaires on all the children in their classrooms. In all, 31 control teachers and 45 intervention teachers participated in the study. The number of assessment contacts and procedures were identical for both the experimental and control conditions.

Participants

Originally, 542 families (approximately 85% of the English-speaking families enrolled in Head Start) indicated interest in participating in the study. Of the 542 families, 345 were assigned to the experimental condition and 167 were assigned to the control condition. During or shortly after the fall baseline assessment phase of the study, 79 families (21%) from the experimental centers and 37 families (22%) from the control centers dropped out of the Head Start program and were either unavailable (because of moves out of the district) or unwilling to complete spring postassessments. Data from prior years indicate that this district normally experiences approximately 22% dropout from initial Head Start enrollment during the fall quarter; thus, the overall dropout rate for the present study seems to reflect normal Head Start attrition for this area. The experimental and control centers did not differ in rate of dropout.

The sample that completed baseline assessments consisted of 426 families (296 experimental and 130 control). Children in the study included 224 (53%) boys and 202 (47%) girls, with a mean age of 56.53 ($SD = 4.26$) months. Of these, 406 (95%) children were living with their biological mother, 4 (1%) with foster parents, and 16 (4%)

with grandparents or other relatives. Parents in the study included 426 mothers and 69 fathers (69 mother-plus-father couples and 357 mothers participating alone). Of these, 233 (55%) were single mothers. The mean age of the mothers was 29.42 ($SD = 6.30$) years, and the mean age of the fathers was 31.97 ($SD = 7.79$) years. Thirty-seven percent of the children represented minority groups, as determined by parent report (17% African American, 6% Hispanic, 4% Asian American, 4% Native American, and 6% combination).

Parents reported an average yearly income of approximately \$10,000. Interviews with the mothers indicated that 21% had their first child when they were a teenager; 16% had at some point lived in a shelter with their children; 28% had a history of substance abuse; 45% had been physically or sexually abused as a child; 8% had a history of criminal activity; and 20% had been involved recently with Child Protective Services for child abuse or neglect. According to the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), 42% of the mothers were experiencing moderate to severe depressive symptoms, scoring 17 or more; 27% were above the normal cutoff point for anger; and 31% reported they "frequently" yelled, hit, or spanked their children. Approximately 49% of the population reported 4 or more (out of 14) risk factors for conduct problems (e.g., low education, lived in shelter, and psychiatric illness; see Table 1 for description of risk factors measured).

Table 1
Demographic and Risk Factors for Intervention and Control Groups at Baseline: Dichotomously Scored Variables

Risk factor	% intervention group ($n = 264$)	% control group ($n = 130$)
Single parent ^a	53	56
Low education (<high school) ^a	25	23
Financial aid (on welfare)	88	85
Ethnicity of child (% minority)	32	47
Gender of child (% male)	54	52
Ever lived in shelter ^a	16	15
Mother <19 years at firstborn ^a	23	20
Mother psychiatric illness ^a	16	11
Mother substance abuse ^a	33	19
Mother criminal history ^a	9	7
Mother physically or sexually abused as child ^a	46	43
Father or boyfriend substance abuse	40	41
Father or boyfriend criminal history	21	35
Mother depression (CES-D >160) ^a	44	38
Mother anger (BAAQ >9) ^a	29	23
Child abuse, CPS current family, or both ^{a,b}	23	16
Yell, slap, or spank frequently ^a	35	26
Mother ECBI total ≥ 11 ^{a,c}	43	38
Mother CBCL Externalizing >59 ^{a,d}	31	30
Mother CBCL Externalizing >63 ^c	21	24
TRF Externalizing >59 ^e	16	17
TRF Externalizing >63 ^e	9	6
Risk factors >3 (out of 14)	52	45

Note. CES-D = Center for Epidemiologic Studies Depression Scale; BAAQ = Brief Anger-Aggression Questionnaire; CPS = Child Protective Services; ECBI = Eyberg Child Behavior Inventory; CBCL = Child Behavior Checklist; TRF = Teacher Report Form.

^a 1 of 14 factors included in risk score. ^b Contact with CPS. ^c ECBI ≥ 11 cutoff score for indicating clinical range. ^d CBCL >60-63 borderline range (82-90 percentile); >63 clinical range. ^e TRF >59 borderline; >63 clinical range.

Prevention Intervention

PARTNERS Parent Training Groups

The major component of the intervention involved teaching positive discipline strategies and effective parenting skills. Parents were also taught ways to strengthen their children's social skills and prosocial behaviors. The 8-9-week parent training program—an abbreviated version of Webster-Stratton's established intervention program for clinic families with conduct problems (Webster-Stratton, 1981; Webster-Stratton & Hancock, 1998; Webster-Stratton & Herbert, 1994)—consisted of weekly parent group meetings (8-16 parents for 2 hr, once a week). Groups viewed videotapes of modeled parenting skills (approximately 100 vignettes). After each 2-min vignette, the group leaders led a focused group discussion of the parent-child interactions. The leaders' collaborative discussion process with parents encouraged problem solving and empowered parents through the support provided by the FSW and an emphasis on self-management. Topics included how to play with your child, helping your child learn, using praise and encouragement to bring out the best in your child, effective limit setting, handling misbehavior, how to teach your child to problem solve, and how to give and get support. Families shown on the tapes came from a variety of ethnic (African American, Asian, Hispanic, and Caucasian) and socioeconomic backgrounds. The children varied from 3 to 7 years of age and showed various developmental stages, temperamental traits, and learning abilities.

Leaders

FSWs ($n = 25$) and 4 parents were trained as parent group leaders. Approximately 30% of the FSWs had master's degrees, and the remainder had bachelor's degrees in social work, psychology, or human services. The 4 parents chosen as coleaders for the second cohort had emerged as natural leaders when they participated as parent members in the first cohort. All leaders received extensive training (involving a 4-day workshop and ongoing weekly supervision) in the content and techniques of the intervention. An intervention manual specified the content of each session, the videotape vignettes to be shown, questions to be explored, recommended role plays, weekly activities and stories, and homework assignments. Initially, each FSW leader coled his or her first parent group with one of the trained clinic staff members. Parent coleaders participated in the groups first as a parent participant, then as an apprentice leader observing the two leaders, and finally as a coleader with a trained FSW.

Intervention Integrity

Close monitoring, standardized materials, and comprehensive training assured the integrity of the intervention. All group leaders (a) completed the 4-day training workshop; (b) followed the detailed training manual for each session; (c) were videotaped for feedback and review by the project director; (d) conducted their first parent group with one of the trained clinic staff members as part of their training process; (e) had weekly supervision and feedback; and (f) kept detailed weekly checklists of group process (e.g., number of role plays completed, agenda posted on board, and key principles discussed), intervention content completed (i.e., number of vignettes shown per session), weekly parent attendance, and parents' reactions (ratings of parent participation and interest in topic). Random selection and review of videotapes of parent groups and weekly checklists revealed that FSWs were careful to follow intervention protocols and indicated that the intervention integrity was very high. Analyses of checklists indicated that 100% of the group leaders discussed all the assigned videotape vignettes in the 8-9-week period and gave out all the home assignments.

Attendance

Of the 296 mothers who participated in the intervention, 160 (54%) were single mothers and 136 (46%) were married or partnered. Of the 136 fathers, only 46 (34%) participated in the intervention program. The mothers attended an average of 5.91 ($SD = 2.19$) sessions, and fathers attended an average of 5.43 ($SD = 2.01$) sessions. Of the 296 mothers, 264 completed postassessments, and of these, 232 (88%) completed 50% or more of the parenting sessions. The primary reasons given for missing sessions included health problems, such as children's illnesses; moving out of area or leaving Head Start; family crises; new jobs; and schedule conflicts.

PARTNERS Teacher Training Workshops

All Head Start teachers and teacher aides in the experimental condition received 2-day workshops (i.e., 16 hr of training) to familiarize them with the parent training content, so that their classroom behavior management would be consistent with strategies the parents were learning. Teachers viewed the same videotapes as did the parents. Discussion emphasized teacher support and reinforcement for parents' efforts and effective strategies for managing misbehavior and promoting social competence in the classroom for all children (e.g., clear rules, positive feedback, teaching social skills, problem solving, and self-control strategies).

Teacher workshop discussions also focused on ways to increase the involvement of parents in their child's preschool program and to strengthen collaboration and positive interactions among Head Start teachers, FSWs, and parents. All the teachers and teacher aides in the intervention centers received the full training sessions.

Control Centers

Families, teachers, and FSWs in the control centers continued their regular Head Start curriculum, which included parent education on such topics as stress management, nutrition, self-care, and dental care. Control families were assessed by means of the same questionnaires and observations and at the same time points as the families at the experimental centers.

Measures

Measures assessed each major outcome domain (i.e., conduct problems, parenting competencies, child social competencies, and parental involvement in school) using multiple measures reported by multiple agents (teachers, parents, and independent observers).

Parenting Competencies

Parenting measures assessed parenting skills, discipline approaches, and support for children's academic and social skills.

Discipline style and techniques. This questionnaire, delivered verbally as an interview by the trained clinic staff, was adapted from the Oregon Social Learning Center's (OSLC) Discipline Questionnaire and was revised for preschoolers to include discipline style and techniques, which the intervention program attempted to increase or decrease. The questionnaire contains two sections. Section A, Discipline Style, is based on parent rating scales that comprise three summary scores: harsh style (7 items that parents rate on a 3-point scale; items include use of parent force, such as verbal or physical aggression or prolonged confinement), consistent style (16 items that parents rate on a 4-point scale; items include consistency in follow-through, predictability of parent responses, level of parental discouragement, and confidence in parenting), and positive style (1 item that parents rate on a 5-point scale concerning how frequently they use verbal encouragement or reinforcement for their

children's positive behaviors). Internal consistency in this study for discipline style was moderate to good, ranging from .63 for harsh style to .87 for consistent discipline.

In Section B, Specific Discipline Techniques, parents indicate how they would respond to the following child misbehaviors: arguments, hitting another child, hitting parents, arguing with peers, lying, and stealing. The parents' responses are recorded verbatim and then scored according to the parent Daily Discipline Interview (DDI) coding system. The DDI coding system (Webster-Stratton & Spitzer, 1991) consists of 38 items grouped into three categories: appropriate limit-setting techniques (13 items defined as nonviolent approaches, such as ignore, time-out, warning of consequences, withdrawal of privileges, distraction, redirection, monitoring, separating children, and grandma's rule), physical negative discipline techniques (10 items defined as slapping, hitting, kicking, shaking, spanking, pushing, soap in mouth, and dragging), and verbal negative discipline techniques (15 items defined as yelling, shouting, fighting, threatening physical punishment, rejecting, humiliating, and criticizing). Interrater reliabilities were obtained for 20% of the DDI responses, with two independent raters scoring the parents' responses. Intraclass correlation coefficients for the summary scores in this study were .93 for physical negative techniques, .94 for verbal negative techniques, and .97 for appropriate limit-setting techniques. In a prior study, Webster-Stratton and Spitzer (1991) have shown modest correlations between DDI variables and laboratory observations of mother behaviors when interacting with children, supporting the validity of this measure.

Independent Observations in the Home: Dyadic Parent-Child Interactive Coding System Revised (DPICS-R). The DPICS, originally developed by Robinson and Eyberg (1981) and revised by Webster-Stratton (1985c), is a widely researched observational measure for recording behaviors of children and their parents in the home. This study used four separate parent summary variables: positive parenting (including praise, positive affect, and physically positive behavior), total critical statements, total commands, and nonverbal affect dimension (valence). Every 5 min, observers paused to code the parent valence on a scale ranging from 1 (*exuberant affect*) to 5 (*unrestrained negative affect*). (See below for discussion of DPICS-R as a measure of child behavior.)

Investigations of the DPICS-R indicate that the behavioral measures are justified on content grounds, that outside reports of behavior coincide satisfactorily with the DPICS-R scores, and that expected behavioral changes following intervention are readily indicated by the DPICS-R scores (Webster-Stratton, 1985b; Webster-Stratton, 1988; Webster-Stratton & Fjone, 1989; Webster-Stratton et al., 1989). In a recent study, the DPICS-R differentiated a referred sample of parents and children with conduct problems from a matched comparison group of parents with behaviorally normal children on all four parent and child variables (Webster-Stratton & Lindsay Woolley, in press).

Home observation procedures. Mothers were observed interacting with their child at home, usually during late afternoon, for 30 min at pre-, post-, and follow-up assessment. Observations were conducted when all family members (other children in the family or boyfriends and partners) were in view of the observer; no telephone calls could be made and no visitors were present. Aside from these changes in family routine, mothers were told to do what they would normally do at that time.

Observers. Six trained staff observers had extensive experience using the DPICS-R system for approximately 3 years before starting this project. Four newly hired observers had approximately 3 months of training (30–45 hr of practice with videotapes) and established 80% reliability with at least two precoded videotapes before being trained further in the home setting with one of the more experienced, reliable observers. To become reliable, the observer had to achieve an interobserver agreement rate of at least 75% with a reliable observer on two

consecutive observations. To count as agreement, events had to be coded correctly by subject matter and coding categories and in the proper sequence. Reliability checks with standardized videotapes were done on a weekly basis and checked during weekly observer meetings for pre-, post-, and follow-up assessment, as well as for 15% of home observations. Reliability checks for home observations were randomly selected at each assessment phase from both the intervention and control conditions. Intraclass correlations assessing interrater reliability were .80 for commands, .77 for critical statements, .70 for positive parenting, and .91 for negative affect valence. Observers were unaware of whether the families were in the experimental or control conditions and were assigned equally to observe families representing both conditions.

Coder Impression Inventory (CII)—Parenting Style. The CII was adapted from the OSLC's Impression Inventory and consists of 72 items describing either the parenting style or the child's affect and behaviors when interacting together. After coding the specific parenting techniques on home observations according to the DPICS-R, the coders completed the CII, recording their impressions of child misbehavior and parenting style. The inventory has three parent scales: Nurturing or Supportive (consisting of 13 items pertaining to acceptance, appreciation, and respect for the child; positive encouragement; patience; and verbal and physical affection), Harsh or Critical (consisting of 11 items pertaining to lack of acceptance, condemnation, and disregard for the child and criticisms, sarcasm, neglect, and lack of acknowledgement of child's abilities), and Discipline Competence (consisting of 13 items pertaining to the parent's ability to gain compliance through a variety of discipline techniques, clear limit setting, realistic expectations, consistent follow-through, and general confidence). Independent observers rate parents on a 5-point Likert scale ranging from *no basis* and *did not occur* to *multiple examples*. Each scale demonstrated acceptable internal consistency, with a Cronbach's alpha of .91, .88, and .84, respectively, for the three scales. (See below for discussion of CII child variables.)

Parent School Involvement

Derived from the OSLC questionnaire, the Parent-Teacher Involvement Questionnaire (INVOLVE) was revised for use with parents of preschool children. This 32-item scale evaluated the amount and quality of parents' involvement with their children's education at home and at school. Parents and teachers completed this measure separately. It assesses three types of involvement: the frequency of parents' involvement with classroom activities and attendance at school functions, parents' interest and satisfaction in talking with teachers, and parents' satisfaction and comfort with their FSWs. Using a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*a great deal*), parents reported the amount of contact with and degree of support from teachers and FSWs. Three total parental involvement scores for the school, teacher, and FSW were derived from the responses ($\alpha = .56, .89, \text{ and } .92$, respectively).

In addition to the parent reports of involvement, teachers rated parents' involvement in their children's education and frequency of contact with teachers and school. Two scores were derived: a frequency of contact with teachers and parent involvement in their children's education ($\alpha = .92 \text{ and } .85$, respectively).

Parent Satisfaction With Program

Following each PARTNERS parent group session, parents completed a brief inventory that asked the parents to rate the effectiveness of the leader, the group dynamics, the videotape vignettes, and the session content. Parents also completed a more comprehensive consumer satisfaction measure (adapted from the work of Forehand & McMahon, 1981), 3-4 weeks postintervention and 1 year later.

Child Social Competence and Conduct Problems at Home

Social Competence Scale—Parent. This instrument, developed by the Conduct Problem Prevention Research Group (Fast Track), consists of 12 items that assess the child's positive social behaviors as perceived by the parent, including frustration tolerance and communication skills. A total social competence score is derived ($\alpha = .87$).

Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991). The Parent Form of the CBCL consists of 118 items dealing with behavior problems. It has been shown to discriminate clinic-referred from nonreferred children (Webster-Stratton & Lindsay Woolley, in press). The items constitute multiple behavior-problem scales derived separately for boys and girls in different age groups. The scales form two broad-band groupings in all gender and age groups: Externalizing Behavior (aggressive, antisocial, and undercontrolled) and Internalizing Behavior (fearful, inhibited, and overcontrolled). In this study, the Externalizing subscale was the variable of interest because of its applicability to a variety of child conduct disorders. The CBCL has established norms; intraclass correlations for the present study were .98 for interparent agreement and .84 for test-retest reliability.

Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980). The ECBI is a 36-item behavioral inventory of child conduct-problem behavior for children aged 2-16 years. This inventory has been shown to correlate well with independent observations of children's behavior and to differentiate clinic-referred and nonclinic populations (Webster-Stratton, 1985b; Webster-Stratton, 1985d). Our studies have shown reliability coefficients for the ECBI scales to range from .86 (test-retest) to .98 (internal consistency). The present study used the Total Problem score, which is an indicator of the total number of behavior problems parents view as problems.

Independent Observations of Child in the Home: DPICS-R. The DPICS-R (described above) was also used to record observed child behaviors. Two summary variables were taken from the child categories: total child deviance and noncompliance (sum of whine, cry, physical negative, smart talk, yell, destructive, and noncompliance) and total positive affect and prosocial behaviors (sum of smiles, laughs, hugs, affectionate behaviors, and positive statements to others). In addition, as for parent affect, a nonverbal affect dimension (valence) for the child was coded. Every 5 min, coders paused to rate the child valence on a scale ranging from 1 (*exuberant affect*) to 5 (*unrestrained negative affect*). Intraclass correlations assessing interrater reliability were .87 for total deviance and noncompliance, .51 for positive affect, and .79 for negative affect valence.

CII—Child. Described above in relation to parent behavior, the CII has three behavior scales for children's behavior: Child Misbehavior and Negative Affect (e.g., noncompliance, irritability, sadness, aggression, and shouting, $\alpha = .74$), Child Positive Affect and Prosocial Behavior (physical or verbal affection and cooperation, $\alpha = .67$), and Overall Poor Conduct (no alpha as it is a single item).

Child Social Competence and Conduct Problems at School

Social Competence Scale—Teacher Reports. This 19-item measure, completed by classroom teachers, was developed by the Conduct Problem Prevention Research Group. Items assessed include tolerance of frustration, peer relationships, communication skills and empathy, and classroom maturity, yielding a total competence score. Internal consistency for the total score was good ($\alpha = .98$). The correlation with mother-reported social competence in this study was .23 ($p < .002$).

Teacher Report Form (TRF; Edelbrock & Achenbach, 1984) of the CBCL. The TRF includes many of the same problem behaviors that parents identify on the CBCL. The TRF consists of teachers' ratings of

academic performance, four general adaptive characteristics, and 112 behavior problems. The present study used the teachers' Externalizing scores.

Demographic and Family Risk Factors

The following risk factors were assessed.

Family Demographic Interview. Mothers were interviewed about level of education completed, income, and minority status. In addition, information was sought in relation to mothers' prior experience with drug abuse, criminal background, psychiatric illness, and prior physical and sexual abuse. Each was assessed with a yes or no response.

Depression: CES-D. Mothers completed the CES-D, which consists of 20 items and has been shown to provide a reliable and valid index of self-reported depressive symptoms (Radloff, 1977).

Parent past history. This measure was adapted from Berger and Knutson's 161-item questionnaire, Assessing Environments III (Berger, Knutson, Mehm, & Perkins, 1988). This measure assesses 15 scales of childhood punitive experiences and environmental characteristics indicative of an abusive family, 3 of which were used in this study. The Severe Physical Punishment scale asks parents to indicate, through a response of true or false, the occurrence of disciplinary events in their own childhood, including being kicked, punched, choked, severely beaten, hit with objects, tied up, and actions requiring medical attention on at least one occasion. The Harsh or Strict Discipline scale asks respondents to indicate their perception of disciplinary events, such as being spanked, called bad names, feeling mistreated, hit with parents' hands, punished harshly, injured from discipline (no medical attention sought), and feeling mistreated, disciplined unreasonably, and unsupported by parents. The 3rd scale, Negative Family Atmosphere, asks respondents to indicate the occurrence of their parents' arguments, marital problems and divorces, inconsistent discipline, disagreements regarding child rearing, mothers' depression, and fathers' problems with police. Internal consistency for these scores was good ($\alpha = .76, .92$, and $.86$, respectively). In studies by Berger et al. (1988), the 3 scales have been shown to be valid and have reported test-retest reliabilities of .84 to .85.

Brief Anger-Aggression Questionnaire (BAAQ; Maiuro, Vitaliano, & Cohn, 1987). The BAAQ is a brief six-item measure developed for assessment of anger levels. Four studies with 401 men have indicated respectable internal consistency ($\alpha = .82$), test-retest reliability ($r = .84$), and construct validity and criterion validity (α in this study = $.75$).

Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978). The LES is a 57-item measure that asks the respondent to assess positive and negative life experiences over the previous year. Its test-retest reliability over 6 weeks ranges from .56 to .88. The present study used the overall Negative Life Events Stress score.

Results

Attrition Analyses and Equivalency of Groups

Analyses first compared the equivalence of the experimental and control groups of the original sample ($N = 542$) in terms of ethnicity, family structure, and risk factors. (Child's age and family income are held constant in Head Start.) The experimental and control groups did not differ significantly on any of the risk factors or demographic variables with the exception of minority status of the children. There were more minority children in the control condition (51%) than in the experimental condition (35%), $\chi^2(1, N = 542) = 11.47, p < .001$.

Attrition analyses comparing those who dropped out of Head Start ($n = 116$) with those who completed baseline assessments

($n = 426$) indicated no significant differences on any of the demographic or risk factors with the exception of ethnicity. Significantly more minority families (28%) were lost from the original sample than Caucasian families (17%), $\chi^2(1, N = 426) = 7.95, p < .05$. However, the initial dropout rate for minority families was not significantly different in the experimental and control conditions.

In the sample that completed baseline assessments ($n = 426$), there continued to be no significant differences between the experimental and control groups on any of the demographic and risk factors with the exception of ethnicity. The percentage of minority children remained significantly higher in the control condition (47%) than in the intervention condition (32%), $\chi^2(1, N = 426) = 7.79, p < .01$.

In the intervention condition, 32 (out of 296) families did not complete spring postassessment, even though they had participated in the intervention. Analyses comparing intervention families that did not complete postassessment ($n = 32$) with those that remained in the intervention and completed postassessment ($n = 264$) yielded no significant differences on any demographic or risk factors.

For the sample that completed postassessment ($n = 394$), there continued to be no significant differences between the experimental and control groups on any of the demographic and risk factor data with the exception of ethnicity (control condition, 47% minority children; intervention condition, 32% minority children), $\chi^2(1, N = 394) = 7.33, p < .01$. Demographic and risk factors for the 264 intervention and 130 control families in the postassessment sample are presented in Tables 1 and 2.

The sample included in analyses that addressed the impact of the intervention at immediate postintervention was composed of the 394 families (264 intervention and 130 control) that completed the postassessment. Note that all participants in the intervention condition who completed the postassessment were included in these analyses, regardless of the dosage of intervention they received. Of the 264 intervention mothers who completed postassessment, 32 (12%) attended less than 50% of the parenting classes and were considered to have an inadequate

Table 2
Intervention and Control Groups on Demographic and Risk Factors: Continuous Variables

Demographic variable	Intervention ($n = 264$)		Control ($n = 130$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Child's age (in months)	56.40	4.28	56.83	4.16
Age of female head of household	29.74	6.47	29.25	6.30
Age of male head of household ^a	31.73	7.09	32.52	9.47
Gross family income ^b	2.56	1.18	2.70	1.17
No. of children in home	2.49	1.27	2.55	1.59
No. of risk factors	3.96	2.42	3.56	2.31
NLES	3.99	3.88	4.09	2.91

Note. NLES = Life Experiences Survey (total negative life events in past year).

^a $n = 133$ (for intervention group); $n = 66$ (for control group). ^b 1 = <\$5,000; 2 = \$5,000–9,999; 3 = \$10,000–14,999; 4 = \$15,000–19,999.

dosage of intervention. These families were included in the analyses because they were part of the population I intended to impact with the prevention program.

Baseline Parent and Child Behaviors

Next, analyses compared the equivalence of the experimental and control groups in terms of the outcome variables and found very few significant differences on any of the baseline variables (only 4 out of 29 variables). These 4 variables were mother report of appropriate limit setting (DDI), teacher report of parent contact with school (INVOLVE), and observations of child deviance and negative affect (DPICS-R). The occurrence of conduct problems (aggressive and disruptive behaviors) at baseline was examined using reports by parents and teachers and observations at home. Parenting competence was examined by means of parent interviews and observations. Mothers were observed to make critical statements at a mean rate of 20.53 ($SD = 17.96$) criticisms per 30 min. Approximately 63% of the mothers were in the high-risk range on this variable according to a cutoff point established from Webster-Stratton and Lindsay Woolley's (in press) discriminative validity study comparing referred and nonreferred samples (i.e., >10 critical statements in 30 min). According to independent observers (on the CII), 35% of the mothers were in the moderate-to-high range for harsh or critical discipline techniques, including condemnation, disregard, sarcasm, neglect, criticism, and lack of acceptance (i.e., >6 harsh acts in 30 min).

According to the mother reports on the ECBI, 23% of the children were in the clinical range (Boggs, Eyberg, & Reynolds, 1990; Rabiner et al., in press; Robinson et al., 1980). According to the CBCL, 22% were in the clinical range (i.e., a T score >63 for Externalizing Behavior). Home observations confirmed the mother report data, with the children exhibiting noncompliant, oppositional, and aggressive behaviors at a mean rate of 12.95 ($SD = 13.30$) per 30 min—that is, about one negative behavior every 2 min. Approximately 49% of the children were in the high-risk range on this variable according to the cutoff point (i.e., >8 deviant plus noncompliant behaviors in 30 min; Webster-Stratton & Lindsay Woolley, in press). According to the TRFs, 8% of the children were in the clinical range for Externalizing problems (i.e., a T score >63).

Intervention Effects: Short-Term Results

Analysis Strategy

Intervention effects were evaluated according to three main domains: parenting competencies, parent school involvement, and child social competencies and conduct problems. Within each of these domains, the measures were grouped into sets or constructs according to the mother reports, the teacher reports, and observational analyses.

First, 2×2 multivariate analyses of variance (MANOVAs) were conducted for each set of dependent variables within each domain, with two levels of time (repeated measure: pre- and post-assessment) and two levels of group (intervention and control). When the MANOVA showed a significant Group \times Time interaction for the set of dependent variables, the individual dependent variables were examined using univariate 2 (group)

$\times 2$ (time) mixed analyses of variance (ANOVAs). When the Group \times Time interaction for an individual dependent variable was significant, paired t tests were used to examine changes from pre- to post-assessment for each group separately—that is, to determine whether the Group \times Time interaction was in the predicted direction and to test the hypothesis that the intervention group would improve significantly but the control group would not.

Parenting Competence

The MANOVA revealed significant Group \times Time interaction effects for the set of mother report measures, $F(6, 377) = 3.94$, $p < .01$. As shown in Table 3, univariate ANOVAs for the individual variables revealed significant Group \times Time interactions for four of the six mother report variables. Paired t tests examining changes from pre- to postassessment for each group separately showed that these effects were in the predicted directions. The intervention mothers reported that their discipline style was significantly ($p < .001$) more consistent and less harsh, whereas the control mothers remained stable over time on these variables. Compared with the control mothers, the intervention mothers reported a significantly ($p < .001$) greater decrease in physically and verbally negative discipline techniques and a significantly greater increase in appropriate limit-setting techniques with their children.

The MANOVA revealed significant Group \times Time interaction effects for the set of mother behavior variables, $F(7, 365) = 6.05$, $p < .001$. Univariate ANOVAs revealed significant Group \times Time interactions for six of the seven variables. Further paired t tests indicated that the intervention mothers significantly ($p < .001$) increased their discipline competence, positive affect, praise, and physical positive behaviors and significantly decreased their harsh or critical behavior, commands, and negative affect. The control mothers showed no pre- to postassessment changes on any observed parenting behaviors (see Table 3).

Parent Involvement in School

A MANOVA did not reveal a significant Group \times Time interaction effect for the set of mother report variables involving satisfaction and contact with school and FSWs, $F(3, 296) = 1.41$, ns . On the other hand, the MANOVA did reveal a significant Group \times Time interaction for the set of two teacher report variables involving parents' school involvement, $F(2, 373) = 5.38$, $p < .01$. As shown in Table 4, ANOVAs for the individual measures revealed significant Group \times Time interaction for both teacher variables. Further analyses showed that the intervention teachers reported significant increases in parents' involvement with their children's education and contact with school, whereas the control teachers' reports remained stable over time.

Child Social Competence and Conduct Problems at Home

A MANOVA revealed a significant Group \times Time interaction for the set of child observation measures, $F(6, 357) = 4.46$, $p < .001$, suggesting that child social competence and conduct problems varied as a function of the intervention condition. As

Table 3
Immediate Effects of Intervention on Parenting Competence

Parenting variable	Intervention group				Control group				ANOVA <i>F</i> Group × Time	Pre vs. post paired <i>t</i> tests	
	Pre		Post		Pre		Post			Intervention group	Control group
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Mother ratings of discipline style											
Harsh	1.28	0.39	1.18	0.38	1.18	0.37	1.21	0.37	12.17**	−4.41***	1.15
Consistent ^a	1.38	0.61	1.13	0.58	1.28	0.56	1.20	0.59	9.73**	−72.5***	−2.43
Positive parent reinforcement	3.55	0.70	3.72	0.64	3.42	0.80	3.51	0.71	0.85	3.27**	1.08
Mother interviews of discipline techniques (DDI)											
Physical negative technique	2.58	1.89	1.69	1.79	2.71	2.00	2.20	1.77	2.97*	−6.86***	−3.04**
Verbal negative technique	3.52	2.18	2.91	1.99	3.69	2.00	3.54	2.04	2.68	−3.68***	−0.68
Appropriate limit-setting technique	4.33	1.97	6.02	2.29	3.67	1.88	4.38	2.21	12.62***	10.34***	3.39**
Coder impression of parenting style (CII)											
Nurturing or supportive	2.47	0.47	2.65	0.34	2.41	0.48	2.50	0.45	2.52	6.18***	1.94
Harsh or critical	1.49	0.50	1.29	0.36	1.40	0.47	1.37	0.43	7.85**	−5.66***	−0.53
Discipline competence	2.20	0.43	2.42	0.36	2.29	0.42	2.27	0.38	19.95***	6.83***	−0.25
Mother observations (DPICS–R)											
Total commands	43.27	26.41	33.07	22.71	45.58	26.19	43.33	26.00	5.93*	−5.33***	−0.89
Positive affect, praise, and physical positive	22.08	15.81	31.96	19.93	23.60	17.63	25.12	16.90	7.72***	7.72***	0.77
Total critical statements	20.46	18.66	12.38	14.68	20.67	16.51	18.85	16.90	−6.77***	−6.77***	−1.23
Valence ^b	2.85	0.43	2.59	0.49	2.84	0.47	2.81	0.44	−7.33***	−7.33***	−0.61

Note. $n = 264$ (for intervention group); $n = 130$ (for control group). Pre = preassessment; Post = postassessment; ANOVA = analysis of variance; DDI = Daily Discipline Interview; CII = Coder Impression Inventory; DPICS-R = Dyadic Parent-Child Interactive Coding System Revised.

^a A high score reflects more inconsistency and low follow-through. ^b A high score (5) represents unrestrained negative affect, and a low score (1) represents positive and exuberant affect.

* $p < .05$. ** $p < .01$. *** $p < .001$.

shown in Table 5, univariate repeated measures ANOVAs revealed significant ($p < .01$) Group \times Time interactions for five of the six observed child variables. Paired *t* tests examining changes from pre- to postassessment for each group separately

showed that the intervention children significantly ($p < .001$) decreased their deviant and noncompliant behaviors, negative affect valence, misbehavior, and poor conduct, whereas the control children remained stable over time on these variables. In

Table 4
Immediate Effects of Intervention on Parent Involvement in School

Immediate Effects of Intervention on Parent Involvement in School											
School variable	Intervention group				Control group				ANOVA <i>F</i> Group × Time	Pre vs. post paired <i>t</i> tests	
	Pre		Post		Pre		Post			Intervention group	Control group
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Mother reports											
Contact with school ^a	3.15	1.02	3.55	1.01	3.07	1.04	3.38	1.01	0.65	6.18***	3.89**
Satisfaction with teacher ^b	3.05	0.55	3.09	0.56	2.96	0.51	3.01	0.57	0.09	0.95	1.24
Satisfaction with FSW ^c	3.08	0.80	3.36	0.62	2.97	0.87	3.07	0.84	2.95*	4.35***	1.39
Teacher reports											
Parent involvement in child's education	2.52	0.89	2.70	0.90	2.43	0.99	2.32	1.06	9.76**	3.22***	-1.56
Parent contact with school	1.19	0.66	1.26	0.64	0.95	0.62	0.86	0.63	5.89*	1.83†	-1.69

Note. $n = 264$ (for intervention group); $n = 130$ (for control group). Pre = preassessment; Post = postassessment; ANOVA = analysis of variance; FSW = family service worker.

^a Scale range 1-5. ^b Scale range 0-4. ^c Scale range 0-4.

† $p < .10$ (marginally significant). * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5
Immediate Effects of Intervention on Child Social Competence and Conduct Problems at Home and School

Child variable	Intervention group				Control group				ANOVA <i>F</i> Group × Time	Pre vs. post paired <i>t</i> tests	
	Pre		Post		Pre		Post			Intervention group	Control group
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Mother reports											
Externalizing behaviors (CBCL)	55.29	10.04	52.45	10.30	54.95	9.79	52.57	9.02	0.27	−5.11***	−3.99***
Externalizing behaviors (ECBI)	9.97	7.77	7.43	6.81	8.78	6.73	7.60	6.53	3.79*	−5.83***	−2.38*
Social competence (P-COMP)	25.19	7.33	27.02	7.10	26.25	7.63	27.24	7.17	1.71	4.64***	2.02*
Home observations (DPICS-R)											
Total child deviance and noncompliance	14.51	13.56	8.99	10.25	9.75	12.18	9.43	11.41	11.69**	−6.35***	−0.25
Positive affect	13.56	13.60	18.55	13.73	16.70	16.47	17.08	14.68	5.05*	4.64**	0.20
Negative affect valence ^a	2.81	0.41	2.58	0.44	2.69	0.45	2.70	0.40	16.81***	−6.83***	0.30
CII											
Misbehavior and negative affect	1.50	0.45	1.35	0.41	1.33	0.40	1.34	0.39	8.16**	−4.61***	0.17
Positive affect and prosocial	2.26	0.50	2.48	0.44	2.25	0.45	2.37	0.50	2.52	5.58***	2.12
Overall poor conduct	3.38	1.37	2.55	1.32	3.02	1.20	2.89	1.20	17.66***	−8.57***	−0.91
Teacher reports											
Externalizing (TRF)	48.84	9.87	50.34	10.25	49.70	8.66	50.81	10.19	0.19	2.82**	1.69
Social competence (T-COMP)	46.32	17.80	48.66	18.00	46.25	17.78	45.68	17.68	4.20*	2.95**	−0.46

Note. $n = 264$ (for intervention group); $n = 130$ (for control group). Pre = preassessment; Post = postassessment; ANOVA = analysis of variance; CBCL = Child Behavior Checklist; ECBI = Eyberg Child Behavior Inventory; P-COMP = Social Competence Scale—Parent; DPICS-R = Dyadic Parent-Child Interactive Coding System Revised; CII = Coder Impression Inventory; TRF = Teacher Report Form; T-COMP = Social Competence Scale—Teacher Reports.

^a A high score is unrestrained negative affect.

* $p < .05$. ** $p < .01$. *** $p < .001$.

addition, the intervention children significantly ($p < .01$) increased in positive affect from pre- to postassessment, whereas the control children remained unchanged. However, the MANOVA did not reveal a significant Group \times Time interaction for the set of mother reports on child adjustment, $F(3, 354) = 1.57$, *ns*.

Child Social Competence and Conduct Problems at School

A MANOVA revealed a significant Group \times Time interaction for the set of two teacher reports on child adjustment, $F(2, 369) = 4.08$, $p < .05$. Univariate ANOVAs revealed a significant Group \times Time interaction for the social competence measure. The intervention children significantly increased their social competence according to teacher reports, but the control children did not change.

Consumer Satisfaction

Consumer satisfaction with the program was high, with 83% (of 264) of the mothers reporting positive to very positive satisfaction with the program and 87% reporting expectations of further positive results from the program. In addition, 92% of the program participants reported that they would recommend

the program to other parents. All teaching methods (videotapes, group discussion, home activities, books, and leader teaching) were rated as very useful in greater than 70% of the cases. Of the parenting techniques covered, praise, encouragement, and good commands were rated the most useful. The majority of parents (79%) wanted their groups to continue.

Intervention Effects: Long-Term Results

Approximately 12–18 months later, when the children were in kindergarten, 296 families (75% of the sample that completed postassessment) were reassessed by means of home observations and parent reports. Of the 296 families, 189 were from the intervention condition and 107 were from the control condition. Because of the lack of grant funds, we randomly selected a subsample of teachers of children who had been in the intervention and control conditions from whom to obtain teacher report assessments. Thus, 136 teachers completed assessments on 90 intervention children (34% of the sample) and on 46 control children (35% of the sample). Analyses comparing the intervention ($n = 189$) and control ($n = 107$) groups at follow-up on the demographic and baseline risk factors showed that there continued to be no significant differences between conditions on any of these baseline measures with the exception of eth-

nicity. The percentage of minority children remained significantly higher in the control condition (45%) than in the intervention condition (32%), $\chi^2(1, N = 296) = 3.99, p < .05$.

Attrition analyses showed that the 98 families that were lost after the postassessment did not differ significantly from the 296 families that completed the 1-year follow-up assessment on any of the demographic or baseline risk factors. Using an ANOVA with two factors (Lost vs. Completer and Intervention vs. Control), I also compared the families that were lost to follow-up with those that remained on the parenting and child measures at post assessment. The results indicated that those that were lost to follow-up did not differ significantly from those that completed follow-up on any of the parenting or child measures at postassessment. More important, there was no differential loss at follow-up by treatment condition on any of the parenting or child measures at postassessment.

Follow-up analyses consisted of MANOVAs for each set of dependent variables, with a Group factor (Intervention vs. Control) and three levels of time (repeated measure: preassessment, postassessment, and follow-up). As before, when the overall MANOVA showed a significant Group \times Time interaction for the set of variables, it was followed by univariate 2 (group) \times 3 (time) ANOVAs for the individual variables. When this ANOVA showed a significant Group \times Time interaction across the three time points, I then examined the Group \times Time interaction, using paired t tests to assess changes between preassessment and follow-up for each group separately.

The MANOVA revealed a significant Group \times Time interaction effect for the mother reports on discipline measures, $F(12, 271) = 3.98, p < .001$ (see Table 6). ANOVAs for the individual variables showed significant Group \times Time interactions for four of the six mother report variables. Three measures showed the predicted preassessment versus follow-up contrast effects: harsh style, inconsistency, and appropriate limit setting. The intervention mothers reported significant decreases in harsh discipline style and inconsistency and increases in appropriate limit setting, from preassessment to follow-up, whereas the control mothers remained stable on these measures.

The MANOVA revealed a significant Group \times Time interaction effect for the observed mother behavior variables, $F(14, 249) = 2.86, p < .01$. ANOVAs showed significant Group \times Time interactions for four of the seven parenting variables taken from the DPICS-R and CII. Significant Group \times Time interactions were obtained for harsh or critical style; discipline competence; positive affect, praise, and physical positive behavior; and negative affect. These interactions were all in the predicted directions. From preassessment to follow-up, the intervention mothers showed significant decreases in harsh or critical style and significant increases in discipline competence and positive affect, praise, and physical positive behavior, whereas the control mothers did not show significant changes on these variables.

In regard to child behavior, the MANOVA for the mother reports on child adjustment did not reveal a significant Group \times Time interaction, $F(2, 264) = 0.87, n.s.$ This result is consistent with the preassessment-postassessment analyses and suggests the pattern of change across the three time points in the mothers' perceptions of child adjustment was not significantly different for the intervention and control groups.

A MANOVA revealed a significant Group \times Time interaction

effect for the observed child behavior variables, $F(12, 244) = 1.98, p < .05$. ANOVAs revealed significant Group \times Time interactions for four of the six child behavior variables. Further follow-up t tests indicated that the intervention children significantly increased their positive affect and significantly decreased their negative affect and misbehavior from preassessment to follow-up, whereas the control children did not change. Thus, the significant improvements noted at postassessment in the intervention children's behaviors were largely maintained 1 year later (see Table 7).

Clinical Significance

A major concern is the extent to which the intervention produced clinically significant improvements in the portion of the population that exhibited high-risk behaviors. *Responders* and *nonresponders* to the intervention were defined in two ways. First, because the most proximal variable I sought to influence by the intervention was parenting style and behavior, *mother responders* were defined as those who showed a reduction of at least 30% from baseline in total critical behaviors. Only high-risk mothers who were in the high range at baseline ($n = 235$) were included in this analysis. High-risk mothers were defined as having more than 10 critical statements in 30 min, on the basis of Webster-Stratton and Lindsay Woolley's (in press) discriminative validity study, which compared referred and nonreferred families on this variable.

Independent observations of mother critical behaviors were chosen as the primary outcome variable because this method was less biased than mother self-reports on physically or verbally negative or harsh discipline strategies and because of the low frequency of observable physical negative discipline during home visits. Moreover, prior research has shown that frequency of criticisms discriminates between abusive and nonabusive parenting and is highly correlated with child deviant behaviors and noncompliance ($r = .53$, Webster-Stratton, 1985a) and with conduct problems (Reid et al., 1981). Finally, 30% improvement has been used as a criterion by Webster-Stratton et al. (1989) and, when there are no established norms for behavioral observation data, by other researchers (e.g., Patterson, 1982; Patterson, Chamberlain, & Reid, 1982) to indicate clinically significant changes.

Second, clinically significant improvements in child behaviors were determined according to a 30% decrease in observable child deviant and noncompliant behaviors at home. Only those children who were observed at baseline to have greater than the cutoff of eight deviant plus noncompliant behaviors in 30 min—and thus defined as *high risk*—($n = 184$, or 49% of the total sample) were included in this analysis (Webster-Stratton & Lindsay Woolley, in press).

Analysis indicated that 69% of the high-risk mothers in the intervention condition showed a 30% reduction in critical statements compared with 52% of the high-risk mothers in the control condition at postassessment, $\chi^2(1, N = 235) = 6.22, p < .05$. Independent observations of child behaviors indicated that 73% of the high-risk intervention children showed at least a 30% reduction in negative and noncompliant behaviors at home, compared with 55% of high-risk control children, $\chi^2(1, N = 184) = 5.06, p < .05$.

Table 6
1-Year Follow-Up Intervention Versus Control Families—Parent Competencies

1-Year Follow-Up Intervention Versus Control Families—Parent Competencies															
Parent variable	Intervention group						Control group						ANOVA <i>F</i> Group × Time (3 times)	Pre vs. follow-up paired <i>t</i> tests	
	Pre			Follow-up			Pre			Follow-up					
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>			Intervention group	Control group
Mother reports of discipline style															
Harsh	1.26	0.40	1.16	0.39	1.09	0.36	1.17	0.36	1.21	0.38	1.22	0.37	12.25***	-6.04***	1.46
Consistent	1.36	0.60	1.14	0.59	1.11	0.55	1.29	0.56	1.19	0.59	1.19	0.59	3.30*	-6.35***	-2.21*
Positive parent reinforcement	3.52	0.72	3.71	0.66	3.72	0.57	3.46	0.77	3.56	0.68	3.53	0.80	0.81	3.52**	0.68
Mother interviews of discipline techniques (DDI)															
Physical negative techniques	2.52	1.79	1.60	1.82	1.79	1.62	2.67	2.07	2.20	1.87	2.14	1.63	1.61	-5.13***	-2.85
Verbal negative techniques	3.56	2.02	2.72	1.91	2.99	1.79	3.70	1.97	3.66	2.10	3.49	1.81	3.49*	-3.25**	-1.01
Appropriate limit-setting technique	4.32	2.04	6.26	2.34	5.75	2.30	3.63	1.90	4.40	2.19	4.03	1.79	9.21***	8.30***	1.94
Coder impression of parenting style (CII)															
Nurturing or supportive	2.47	0.48	2.63	0.37	2.61	0.37	2.41	0.48	2.52	0.45	2.52	0.37	0.33	3.62***	1.94
Harsh or critical	1.52	0.52	1.33	0.42	1.30	0.39	1.38	0.45	1.37	0.43	1.33	1.33	4.17*	4.96***	-0.97
Discipline competence	2.22	0.45	2.40	0.40	2.39	0.37	2.28	0.43	2.26	0.39	2.32	0.36	5.77**	4.24***	0.66
Home observations (DPICS-R)															
Total commands	42.13	26.54	32.84	22.37	32.80	22.79	43.63	25.22	41.83	25.34	40.03	23.06	2.80	-4.01***	-1.23
Total critical statements	19.66	18.56	12.62	15.14	13.59	14.47	20.08	16.35	18.23	16.75	17.80	17.60	2.76	-4.40***	-1.16
Positive affect, praise, and physical positive	21.63	16.20	31.61	19.43	29.52	20.91	23.00	17.53	24.72	17.23	25.50	18.27	4.92**	4.91***	1.17
Negative affect valence	2.86	0.43	2.58	0.50	2.69	0.49	2.85	0.48	2.82	0.43	2.81	0.36	5.97**	-4.02***	-0.73
Parent involvement at school ^a															
Parent involvement in child's education	2.56	0.94	2.71	0.90	2.43	1.03	2.46	1.00	2.48	0.99	2.06	1.07	0.86	-1.08	-2.82**
Parent contact with teacher	1.23	0.68	1.25	0.61	0.80	0.60	0.99	0.58	0.84	0.53	0.49	0.47	1.68	-5.09***	-5.21***

Note. *n* = 189 (for intervention group); *n* = 107 (for control group). Pre = preassessment; Post = postassessment; ANOVA = analysis of variance; DDI = Daily Discipline Interview; CII = Coder Impression Inventory; DPICS-R = Dyadic Parent-Child Interactive Coding System Revised.

* According to teacher reports.

** *p* < .05. *** *p* < .001.

Table 7
1-Year Follow-Up Intervention Versus Control Families—Child Competencies

Child variable	Intervention group						Control group						ANOVA <i>F</i> Group × Time (3 times)		Pre vs. follow-up paired <i>t</i> tests	
	Pre			Post			Pre			Post						
	Follow-up		Pre	Follow-up		Post	Follow-up		Pre	Follow-up		Post				
	<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		<i>M</i>	<i>SD</i>		
Mother reports																
Externalizing score (CBCL)	55.42	10.23	52.51	10.58	53.50	55.10	10.05	52.49	9.28	53.40	9.49	0.05	-3.04**	-2.09*		
Externalizing score (ECBI)	10.04	7.86	7.62	6.88	7.99	8.54	6.13	7.39	6.13	7.29	6.25	1.44	-4.43***	-2.29*		
Social competence (P-COMP)	25.06	7.31	27.13	7.07	27.85	26.82	7.27	27.79	6.77	28.15	7.38	1.94	5.69***	2.10		
Home observations (DPICS-R)																
Total deviance and noncompliance	14.25	13.55	8.94	10.24	9.84	9.66	11.83	9.09	10.88	7.24	9.23	3.67*	-4.55***	-2.05*		
Positive affect	13.68	14.40	18.97	14.23	17.28	16.05	16.92	16.63	14.84	14.79	14.58	2.54*	2.73**	-0.62		
Negative affect valence	2.83	0.39	2.56	0.44	2.66	2.69	0.45	2.69	0.36	2.75	0.33	7.97***	-3.79***	0.90		
CII																
Misbehavior or negative affect	1.50	0.45	1.33	0.38	1.36	1.33	0.39	1.34	0.36	1.25	0.29	4.12*	-3.69***	-1.89		
Positive affect or prosocial	2.28	0.49	2.46	0.47	2.48	2.22	0.47	2.36	0.48	2.41	0.42	0.20	4.18***	3.23*		
Overall poor conduct	3.22	1.36	2.52	1.13	2.68	3.03	1.27	2.84	1.11	2.55	1.18	4.40*	-4.33***	-2.89**		
Teacher reports																
Externalizing (TRF)	49.74	10.65	51.19	11.16	52.79	49.52	8.93	49.41	11.09	54.07	9.03	1.43	2.51*	2.93**		
Social competence (T-COMP)	45.66	17.62	47.61	19.90	47.04	50.88	18.03	51.47	15.03	47.93	17.59	0.85	0.73	-1.04		

Note. *n* = 189 (for intervention group); *n* = 107 (for control group). Pre = preassessment; Post = postassessment; ANOVA = analysis of variance; CBCL = Child Behavior Checklist; ECBI = Eyberg Child Behavior Inventory; P-COMP = Social Competence Scale—Parent; DPICS-R = Dyadic Parent-Child Interactive Coding System Revised; CII = Coder Impression Inventory; TRF = Teacher Report Form; T-COMP = Social Competence Scale—Teacher Reports.

p* < .05. *p* < .01. ****p* < .001.

At 1-year follow-up, the difference between the groups for the high-risk mothers' reductions in criticisms was no longer significant. Analyses indicated that 65% of the high-risk mothers showed a 30% reduction, compared with 55% of the high-risk mothers in the control condition, $\chi^2(1, N = 162) = 1.32, ns$. The difference between groups for the high-risk children's behaviors was also nonsignificant. Analyses indicated that 73% of the high-risk children showed a 30% reduction, compared with 69% of the control children, $\chi^2(1, N = 129) = 0.17, ns$.

Discussion

The purpose of this study was to evaluate a comprehensive, multifaceted theory-based preventive program. FSWs, teachers, and parents all had an essential role in the intervention. The primary aim of the program was to strengthen protective factors—namely, parenting competence, child social competence, and home-school connections—as these are considered the most proximal links in the chain leading to the prevention of conduct problems. In addition to being an intervention trial, this study has other research value. It yielded important information regarding the incidence and prevalence of early onset conduct problems in Head Start children as well as new information about family risk factors in this population. These findings have important implications for designing effective prevention and intervention programs that target multiple risk factors (e.g., depression) for this population. In addition to a high number of personal risk factors, a high percentage of mothers using parenting practices that put their child at risk for conduct problems were found. The percentages ranged from 30% to 50%, depending on whether parenting style was assessed by means of independent observations or mother self-report (i.e., harsh, physically negative approaches). These data argue for the importance of targeting this population for strengthening and supporting positive parenting skills and discipline techniques.

The results of the program are promising. Whether parenting competence was evaluated through parent self-reports of discipline techniques, general parenting style, independent observers' general impressions of mother discipline style (e.g., harsh vs. nurturing), or observations of discrete parenting behaviors and techniques, all forms of assessment indicated significant short- and long-term improvements in parenting competence among the intervention mothers as compared with the control mothers. The intervention mothers were observed by raters to show significant decreases in critical and harsh parenting style as well as significant increases in positive and competent discipline. The control mothers showed no changes. The intervention mothers corroborated these independent findings when they reported using significantly less harsh and more consistent discipline style and more appropriate limit-setting techniques than did the control mothers. These short- and long-term findings suggest that the parenting program was successful in its objective of strengthening the first protective factor, parenting competence, thereby reducing the risk factors of inconsistent, harsh, or highly critical parenting styles. A rather interesting footnote is that when the data were analyzed separately for the parent completers—those who attended more than 50% of the parent sessions offered—significant reductions were also found in parents' use of physi-

cally negative discipline approaches and increased positive affect or nurturing parenting compared with the control mothers.

The results regarding the second protective factor—that is, increasing parental involvement in school—were less clear cut. Although intervention mothers did not report increased contact with Head Start teachers or more satisfaction in their relationships with these teachers, teachers from the intervention condition did report increased contacts with parents or increased parent involvement in their children's education compared with teachers reports regarding control parents. These apparently contradictory results are not altogether surprising. Because the Head Start program actively promotes parent involvement as part of its program philosophy, it is to be expected that parents in both conditions either would have or would perceive themselves as having a high degree of contact with teachers. Similarly, parents in both conditions already had high levels of satisfaction with Head Start teachers. This created a ceiling effect, making it difficult to see further improvements in mothers' reports on this variable. Head Start teachers, on the other hand, may have reported greater involvement on the part of the intervention parents because of their knowledge of parents' involvement in the parenting program and because of the increased time parents spent in the classroom.

Particularly noteworthy results emerged 1 year later when kindergarten teachers rated mothers' involvement with teachers and school activities. This time the teachers had no knowledge of whether or not mothers had participated in the parenting intervention. Although there was a trend for teachers to report the intervention mothers as more involved in their children's education than the control mothers, this was not statistically significant. Only when the parent completers were analyzed separately was this finding significant. This lack of statistical significance may have resulted from the reduced sample size for teachers at the follow-up phase. Nonetheless, there was a notable drop in the level of parent involvement in kindergarten classrooms and with teachers compared with the level of involvement obtained in Head Start, regardless of whether parents were in the intervention or control condition.

Results in regard to the child distal variables—that is, conduct problems and social competence—were also promising. When observed in the home at postassessment, the intervention children showed significant decreases in negative behaviors, noncompliance, and negative affect and significant increases in positive affect in their interactions with mothers compared with control children whose behaviors remained stable. One year later, children from the intervention condition still had significant increases in their levels of positive affect and decreases in negative affect in their interactions with their mothers at home compared with control children. These findings are important from a theoretical perspective, for the social learning model would predict that higher levels of parent competence would be associated with lower levels of conduct problems. As seen here, the strengthened parenting skills promoted children's social competence and reduced negative behaviors in the intervention children.

Despite the rather remarkable differences between intervention and control children's observed behaviors at home at postassessment, there were no significant differences in the levels of behavior problems reported by their mothers. One possible

explanation for this finding may be that nonreferred mothers are initially reluctant to admit or acknowledge child behavior problems to outsiders and researchers because of their values regarding family privacy or, on the other hand, because they have different attitudes and values regarding aggressive and social behaviors. Underreporting of behavior problems at baseline assessments would create a floor effect, making it difficult to show any further improvements. Another explanation for the failure to find differences in mother reports is that there may have been systematic biases in mother reports of behavior problems depending on whether they were in the intervention or control condition. For example, the control mothers who were only assessed and not offered a parent intervention might have been even more reluctant to admit or acknowledge child behavior problems at postassessment because there was no perceived benefit in doing so, whereas the intervention mothers who had experienced 8–9 weekly group sessions in which common behavior problems were discussed may have felt less stigmatized in admitting these problems at postassessment. In fact, the intervention was designed to strengthen parents' ability to identify specific behavior problems to provide more effective and appropriate parenting responses.

In contrast to the significant changes in parent–child behavioral interactions at home, there was only one significant difference between the intervention and control children at school, according to teacher reports, at postassessment. The intervention children showed higher levels of social competence than did the control children, as reported by teachers, but by 1-year follow-up this difference, according to teacher reports, had disappeared. There are several possible explanations for the stronger findings regarding child conduct problems at home compared with child conduct problems in the school setting. First, the parenting intervention was longer and more comprehensive—spanning 8–9 weeks, with ongoing weekly assignments—whereas the teacher intervention was a short, 2-day burst at the beginning of the year, designed principally to inform teachers about the parenting program. Had the teacher intervention been more intensive or been targeted directly at classroom management skills, maybe it would have produced more notable reductions in child externalizing problems in the classroom. Second, it could also be postulated that, by virtue of their training, teachers were already promoting children's social skills in the classroom, regardless of whether they were intervention or control teachers, making it difficult to see further changes. Third, the failure to see a reduction of externalizing behaviors in the classroom could be an artifact of the low baseline rates of these behaviors in the classroom. At baseline, only 8% of the children were reported by teachers to be in the clinical range for externalizing problems on the TRF, making it difficult to detect any improvements. At home, where approximately 30% of the children were observed to be in the moderate-to-high range, there was greater power for detecting differences. Moreover, at 1-year follow-up, the teacher sample was reduced, making it even more difficult to detect differences.

These results indicate the success of our efforts to use a clinic-based treatment program (designed originally for parents with children diagnosed with ODD or CD) as a prevention program for a culturally diverse and socioeconomically disadvantaged population of parents not necessarily concerned with

significant child behavior problems. A remarkable response was obtained to the program, with 75% of the English-speaking Head Start enrollees in the intervention centers participating in the parenting program—more than 10 times the normal response rate to Head Start's monthly parent-education evening events. Although one might have anticipated that the length and comprehensiveness of the PARTNERS 8-week program might have discouraged parents from signing up, in this case it seemed to attract them, for it allowed parents the time to develop safe and comfortable groups, to get to know and trust FSWs, and to develop meaningful support networks, which they did not want to end. The dropout rate, once parents started the program, was very low, and attendance was high—only 17% did not attend at least 50% of the sessions. The high consumer-satisfaction ratings indicate that parents liked both the format and the content of the program.

Several limitations to this study are worth noting. The first has to do with the setting specificity and large variability in the observed deviant and noncompliant behaviors in children of this age. This makes it difficult to detect group differences, particularly in prevention studies where the base rate of problem behaviors is low to begin with. One solution to this problem would be to conduct more home observations of children's behaviors at each assessment period or to assess an even larger sample size; however, budget constraints along with parents' dislike of home observations make this an unlikely option. A second limitation has to do with understanding the parenting program's potential to generalize to other low-income families. The enriched classroom environment of the Head Start setting provided considerable contextual support for the parenting program. It is difficult to say whether this program would be effective with low-income families not enrolled in Head Start because these families may differ in some other important ways from families that choose Head Start for their children. One could argue, for example, that Head Start attracts the most motivated among poor families; however, in this district, only 50% of families who apply for Head Start are offered a placement in Head Start because of budget restraints and limited Head Start classrooms. Consequently, the selection of families for Head Start is based on families at most risk in terms of number of children and level of poverty.

Another potential limitation to the study is the significant difference between the intervention and control conditions in regard to minority status, with the control group having a higher percentage of minorities (47%) than the intervention group (33%). Although there was an effort to match for ethnicity when selecting centers, there were some neighborhoods that were more populated by certain ethnic groups than others. Although all other demographic and family risk factors were comparable across the two conditions, it was unclear how this difference in minority status might have differentially influenced study results. Another related question is whether the parenting program worked differentially for the minority families in the intervention condition, which comprised 33% of the population. Because the minority families in this study consisted of diverse groups (six different Asian groups, Hispanic, African American, Native American, and various combinations), there was not a large enough sample of any one minority group to conduct analyses by groups, nor did I feel it was justified to combine

minority groups. Future research that expands the minority population will permit analyses of the program's effectiveness and acceptability by minority group.

Another important point about this study's design is that the control group was not, technically speaking, a control group. That is, families in the control Head Start centers still obtained regular Head Start support services from FSWs and teachers, including crisis management and parent classes on topics such as stress management, nutrition, and dental care. Thus, the differences obtained from the PARTNERS intervention were over and above what was being gained from the Head Start program itself. It would have been advantageous to have a third comparison group of families that was matched according to low income and other demographic and risk factors but that was not enrolled in Head Start. This would help sort out what added effects are obtained from the Head Start program with and without the intervention. Despite these limitations, there were still significant improvements in parent-child relationships in the intervention condition as compared with the control condition—improvements that were mostly maintained 1 year later.

It has been stated that because low-income parents are "multiply entrapped" (Wahler & Barnes, 1988), they will be unlikely to show up for parent groups, will most likely drop out of parent training programs, or will fail to show significant improvements in their parenting. This study provides evidence to the contrary. Certain features of program design result in a higher level of parental engagement—namely, programs that are community based, offered through the schools so that they are more accessible to parents living on welfare (the working poor), and are delivered in a collaborative format in which parents, teachers, and FSWs support each other. When these conditions are met, parent training programs can result in parents gaining the knowledge, control, and competence they need to cope effectively with the stresses of parenting under conditions of poverty (see Webster-Stratton, 1998, for more information on engaging low-income families). These findings with a relatively brief parenting intervention program suggest the utility of early intervention prevention programs designed to strengthen the protective factors—parenting competence, children's social skills, and strong home-school involvement—as a strategy for preventing conduct problems. Not only were these protective factors strengthened, but for those children who were in the clinical range for conduct problems at baseline and whose mothers received the intervention, 73% also showed a 30% reduction in conduct problems, thus reducing child risk factors. However, the transition from Head Start to kindergarten results in a significant reduction in parents' level of involvement in their children's education and classrooms (regardless of group condition) and in a deterioration in the positive effects obtained from the intervention for a subset of children in the clinically significant range. These data suggest that such parenting programs need to be broadened and lengthened to address other risk factors (e.g., maternal depression) and extended beyond Head Start, offering parent support and training for high-risk families throughout the primary grades. Comprehensive parenting programs spanning preschool through the early school grades and at critical transition phases in later years (e.g., transition to middle school) will undoubtedly offer even greater potential for reducing conduct problems and preventing delinquency in later years.

References

- Achenbach, T. M., & Edelbrock, C. S. (1991). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: University Associates in Psychiatry.
- Adams, D. (1976). *Parent involvement*. Berkeley, CA: Parent Development Center for Study of Parent Involvement.
- Adkins, D. C. (1971). *Programs of Head Start parent involvement in Hawaii: 1969-70*. Honolulu: Education Research and Development Center, Hawaii University.
- Asarnov, J. R., & Callan, J. W. (1985). Boys with peer adjustment problems: Social cognitive processes. *Journal of Consulting and Clinical Psychology, 53*, 80-87.
- Berger, A. M., Knutson, J. F., Mehm, J. G., & Perkins, K. A. (1988). The self-report of punitive childhood experiences of young adults and adolescents. *Child Abuse and Neglect, 12*, 251-262.
- Boggs, S. R., Eyberg, S., & Reynolds, L. A. (1990). Concurrent validity of the Eyberg Child Behavior Inventory. *Journal of Clinical Child Psychology, 19*, 75-78.
- Campbell, S. B. (1991). Longitudinal studies of active and aggressive preschoolers: Individual differences in early behavior and outcome. In D. Cicchetti & S. L. Toth (Eds.), *Rochester symposium on developmental psychopathology* (pp. 57-90). Hillsdale, NJ: Erlbaum.
- Campbell, S. B., Breaux, A. M., Ewing, L. J., Szumowski, E. K., & Pierce, E. W. (1986). Parent-identified problem preschoolers: Mother-child interaction during play at intake and 1-year follow-up. *Journal of Abnormal Child Psychology, 14*, 425-440.
- Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (in press). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of Consulting and Clinical Psychology*.
- Coie, J. D., Watt, N. F., West, S. G., Hawkins, D., Asarnow, J. R., Markman, H. J., Ramey, S. L., Shure, M. B., & Long, B. (1993). The science of prevention: A conceptual framework and some directions for a national research program. *American Psychologist, 48*, 1013-1022.
- Edelbrock, C., & Achenbach, T. (1984). The teacher version of the child behavior profile: Boys aged 6-11. *Journal of Consulting and Clinical Psychology, 52*, 207-217.
- Egeland, B., Kalkoske, M., Gottesman, N., & Erickson, M. F. (1990). Preschool behavior problems: Stability and factors accounting for change. *Journal of Child Psychology and Psychiatry, 31*, 891-909.
- Forehand, R. L., & McMahon, R. J. (1981). *Helping the noncompliant child: A clinician's guide to parent training*. New York: Guilford Press.
- Haber, R. (1987). Friends in family therapy: Use of a neglected resource. *Family Process, 26*, 269-281.
- Hawkins, J. D., Catalano, R. F., & Miller, Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112*, 64-105.
- Hubbell, J. (1983). *A review of Head Start research since 1970* (Publication No. OHDS 83-31184). Washington, DC: U.S. Government Printing Office.
- Maiuro, R. D., Vitaliano, P. P., & Cohn, T. S. (1987). A brief measure for the assessment of anger and aggression. *Journal of Interpersonal Violence, 2*, 166-178.
- McLoyd, V. C. (1990). The impact of economic hardship on Black families and children: Psychological distress, parenting, and socio-emotional development. *Child Development, 61*, 311-346.
- Medicine, I. O. (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention research*. Washington, DC: National Academy Press.
- Offord, D. R., Alder, R. J., & Boyle, M. H. (1986). Prevalence and sociodemographic correlates of conduct disorder. *American Journal of Social Psychiatry, 6*, 272-278.
- Offord, D. R., Boyle, M. H., & Szatmari, P. (1987). Ontario Child

- Health Study II: Six month prevalence of disorder and rates of service utilization. *Archives of General Psychiatry*, 44, 832-836.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, 102, 357-389.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Patterson, G. R., Chamberlain, P., & Reid, J. B. (1982). A comparative evaluation of a parent training program. *Behavior Therapy*, 13, 638-650.
- Patterson, G. R., & Stouthamer-Loeber, M. (1984). The correlation of family management practices and delinquency. *Child Development*, 55, 1299-1307.
- Rabiner, D. L., Keane, S. P., & Mackinnon, C. (in press). Children's beliefs about familiar and unfamiliar peers in relation to their socio-metric status. *Child Development*.
- Radloff, L. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Journal of Psychological Measurement*, 1, 385-401.
- Reid, J., Taplin, P., & Loeber, R. (1981). A social interactional approach to the treatment of abusive families. In R. B. Stuart (Ed.), *Violent behavior: Social learning approaches to prediction management and treatment* (pp. 83-101). New York: Brunner/Mazel.
- Richard, B. A., & Dodge, K. A. (1982). Social maladjustment and problem solving in school-aged children. *Journal of Consulting and Clinical Psychology*, 50, 226-233.
- Robinson, E. A., & Eyberg, S. M. (1981). The dyadic parent-child interaction coding system: Standardization and validation. *Journal of Consulting and Clinical Psychology*, 49, 245-250.
- Robinson, E. A., Eyberg, S. M., & Ross, A. W. (1980). The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology*, 9, 22-28.
- Rose, S. L., Rose, S. A., & Feldman, J. (1989). Stability of behavior problems in very young children. *Development and Psychopathology*, 1, 5-20.
- Rubin, K. H., & Krasnor, L. R. (1986). Social-cognitive and social behavioral perspectives on problem-solving. In M. Perlmutter (Ed.), *Cognitive perspectives on children's social and behavioral development: The Minnesota symposia on child psychology* (Vol. 18, pp. 1-68). Hillsdale, NJ: Erlbaum.
- Rutter, M. (1980). *Changing youth in a changing society*. Cambridge, MA: Harvard University Press.
- Sarason, I. G., Johnson, J. H., & Siegel, J. M. (1978). Assessing the impact of life changes: Development of the Life Experiences Survey. *Journal of Consulting and Clinical Psychology*, 46, 932-946.
- Schonfeld, I. S., Shaffer, D., O'Connor, P., & Portnoy, S. (1988). Conduct disorder and cognitive functioning: Testing three causal hypotheses. *Child Development*, 59, 993-1007.
- Sturge, C. (1982). Reading retardation and antisocial behavior. *Journal of Child Psychology and Psychiatry*, 23, 21-23.
- Wadsworth, M. E. (1976). Delinquency, pulse rates and early emotional deprivation. *British Journal of Criminology*, 16, 245-255.
- Wahler, R. G., & Barnes, P. G. (1988, November). *Synthesis training as a supplement to parental training with troubled mothers*. Paper presented at the meeting of the Association for the Advancement of Behavior Therapy, New York, NY.
- Webster-Stratton, C. (1981). Videotape modeling: A method of parent education. *Journal of Clinical Child Psychology*, 10, 93-98.
- Webster-Stratton, C. (1985a). Comparison of abusive and nonabusive families with conduct-disordered children. *American Journal of Orthopsychiatry*, 55, 59-69.
- Webster-Stratton, C. (1985b). Comparisons of behavior transactions between conduct-disordered children and their mothers in the clinic and at home. *Journal of Abnormal Child Psychology*, 13, 169-184.
- Webster-Stratton, C. (1985c). *Dyadic Parent-Child Interactive Coding System-Revised (DIPCS-R): Manual*. Seattle: University of Washington.
- Webster-Stratton, C. (1985d). Mother perceptions and mother-child interactions: Comparison of a clinic-referred and a non-clinic group. *Journal of Clinical Child Psychology*, 14, 334-339.
- Webster-Stratton, C. (1988). Mothers' and fathers' perceptions of child deviance: Roles of parent and child behaviors and parent adjustment. *Journal of Consulting and Clinical Psychology*, 56, 909-915.
- Webster-Stratton, C. (1990). Stress: A potential disruptor of parent perceptions and family interactions. *Journal of Clinical Child Psychology*, 19, 302-312.
- Webster-Stratton, C. (1994). Advancing videotape parent training: A comparison study. *Journal of Consulting and Clinical Psychology*, 62, 583-593.
- Webster-Stratton, C. (1998). Parent training with low-income clients: Promoting parental engagement through a collaborative approach. In J. R. Lutzker (Ed.), *Handbook of child abuse research and treatment* (pp. 183-210). New York: Plenum Press.
- Webster-Stratton, C., & Fjone, A. (1989). Interactions of mothers and fathers with conduct problem children: Comparison with a nonclinic group. *Public Health Nursing*, 6, 218-223.
- Webster-Stratton, C., & Hancock, L. (1998). Parent training: Content, methods and processes. In E. Schaefer (Ed.), *Parent training* (pp. 98-152). New York: Wiley.
- Webster-Stratton, C., & Herbert, M. (1994). *Troubled families—Problem children: Working with parents: A collaborative process*. New York: Wiley.
- Webster-Stratton, C., Hollinsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct-problem children. *Journal of Consulting and Clinical Psychology*, 57, 550-553.
- Webster-Stratton, C., & Lindsay Woolley, D. (in press). *Social competence and conduct problems in young children: Issues in assessment*. *Journal of Child Clinical Psychology*.
- Webster-Stratton, C., & Spitzer, A. (1991). Development, reliability and validity of the Daily Telephone Discipline Interview: DDI. *Behavioral Assessment*, 13, 221-239.
- White, J., Moffit, T., Earls, F., & Robins, L. (1990). Preschool predictors of persistent conduct disorder and delinquency. *Criminology*, 28, 443-454.
- Zahn, W. C., McKnew, D. H., Cummings, E. M., Davenport, Y. B., & Radke, Y. M. (1984). Problem behaviors and peer interactions of young children with a manic-depressive parent. *American Journal of Psychiatry*, 141, 236-240.
- Zigler, E., & Styfco, S. J. (1993). *Head Start and beyond*. New Haven: Yale University Press.

Received December 6, 1996

Revision received October 6, 1997

Accepted January 29, 1998 ■