

Parent Training in Head Start: A Comparison of Program Response Among African American, Asian American, Caucasian, and Hispanic Mothers

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The effectiveness of the Incredible Years Parenting Program was evaluated in a low-income sample of Caucasian, African American, Hispanic, and Asian mothers whose children were enrolled in Head Start. Data from two prior intervention studies [Webster-Stratton (1998) *Journal of Consulting and Clinical Psychology*, 66(5), 715–730; Webster-Stratton *et al.* (in press) *Journal of Clinical Child Psychology*] were combined, yielding a sample of 634 families (370 Caucasian, 120 African American, 73 Asian, 71 Hispanic) across 23 Head Start centers. Centers were matched and assigned randomly to either an experimental condition (8–12 weeks of weekly 2-hr parenting classes), or a control condition (the regular Head Start Program without parenting groups). Families in both conditions were assessed using home observations of parent–child interactions and parent reports of parenting style and discipline strategies and child behavior problems in the fall (baseline) and spring (postintervention) of the children's Head Start year. Families were reassessed 1 year later. Following treatment, intervention mothers were observed to be more positive, less critical, more consistent, and more competent in their parenting than were control mothers. Additionally, children of intervention parents were observed to exhibit fewer behavior problems than were control children. Differences in treatment response across ethnic groups were few, and did not exceed the number expected by chance. Parents from all groups reported high satisfaction levels following the parenting program. Results indicate that the Incredible Years Program is accepted by and effective with diverse populations.

KEY WORDS: parenting; minority; prevention; conduct problems; head start.

Prevention of violent and antisocial behavior in children and adolescents has become a national priority. The incidence of oppositional defiant disorder (ODD) and conduct disorder (CD) in young children, key predictors of adolescent delinquency, substance abuse, and violent behavior, is alarmingly prevalent, with reported rates of early-onset conduct problems as high as 35% in low-income families (Chambless & Hollon, 1998; Webster-Stratton *et al.*, 1989). Parent

training has been recognized as one of the most effective approaches in preventing and reducing conduct problems (e.g., Brestan & Eyberg, 1998). A number of researchers, however, have noted that families do not respond equally to parent training. Individual child and parent characteristics, and environmental factors such as low socioeconomic status (SES), are associated with poorer treatment response (e.g., Kazdin, 1995; Sanders, 1992; Webster-Stratton & Hammond, 1990). Moreover, researchers have experienced difficulty recruiting (Spoth & Cleve, 1995), retaining (Eyberg & Johnson, 1974), and producing sustained improvements (Dumas & Wahler, 1983) in low-income families. In response to these findings, several authors have emphasized the importance of assisting low-income families to overcome

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barriers to treatment (e.g., flexible group schedules, child care, transportation, extensive support) and have demonstrated that with adequate support, these families are motivated and benefit from parent training (Miller & Rojas-Flores, *in press*; Webster-Stratton, 1998; Webster-Stratton *et al.*, 2001). Somewhat less research has been conducted assessing the efficacy of established parenting programs for use with minority parents, who are often overrepresented in low-income populations. However, a number of researchers have described cultural differences in parenting practices and values across minority groups (e.g., Forehand & Kotchick, 1996). Indeed, many have stressed the importance of addressing these differences when designing and implementing parenting programs, and have suggested that minority parents may not fare well in programs that were validated originally with Caucasian samples (Forehand & Kotchick, 1996; Hill *et al.*, 1994; Wood & Baker, 1999). Despite these warnings, there is a dearth of research comparing the outcomes of minority and Caucasian parents who participate in empirically validated parent training programs.

Nevertheless, other areas of the prevention literature may shed some light on this issue. Research suggests that effective drug abuse prevention programs result in similar effects for minority and Caucasian students (Botvin, 1995; Ellickson & Bell, 1990; Graham *et al.*, 1990). In addition, a study comparing generic and culturally focused drug and alcohol prevention programs found that both treatments resulted in positive changes in minority students' reported intentions to use alcohol and drugs immediately posttreatment, and at 2-year follow-up (Botvin *et al.*, 1994, 1995). Dent *et al.* (1996) outlined empirical and theoretical arguments for using generic versus culturally specific drug abuse prevention programs with minority populations. They noted that given the considerable cost of developing, evaluating, and implementing prevention programs, and the increasing heterogeneity of target populations, generic programs are desirable if effective for diverse groups.

A separate issue from whether prevention programs are effective for minority groups is the extent to which potential minority participants enroll in and attend the offered programs. A review of the literature on recruitment for parenting programs in minority communities suggests that standard recruitment and retention techniques may be less effective for different cultural groups (Harachi *et al.*, 1997). Thus, while programs may be effective for minority families who attend trainings, recruitment efforts that are not

culturally sensitive may miss potential minority families. Harachi *et al.* (1997) have suggested that recruiting from existing community institutions (e.g., schools, churches, community centers) with the assistance of their leaders may help to increase enrollment among targeted ethnic groups (see also, Taylor & Biglan, 1998).

The Parent Program from The Incredible Years Training Series is an empirically validated parent training program that has been used successfully as a clinic-based treatment for children with conduct problems (Taylor *et al.*, 1998; Webster-Stratton *et al.*, 1989; Webster-Stratton & Hammond, 1997) and as a school-based prevention program for low-income multiethnic Head Start families (Webster-Stratton, 1998; Webster-Stratton *et al.*, *in press*). Program content focuses on strengthening parent competencies, fostering parents' involvement with school, decreasing children's problem behaviors, and strengthening children's social and academic competencies. The program process includes a group-format in which a trained leader facilitates discussions and collaborations among parents about parenting issues. Videotaped vignettes of parents in a variety of common parenting situations serve as starting points for these discussions. Parents and children in the vignettes represent multiple cultural backgrounds. The program is generic in that the same content is presented to all parents attending the groups. Cultural sensitivity is fostered by parents identifying their own individual goals for their children, and by respecting diverse viewpoints and goals. The collaborative process, in contrast to a didactic presentation, assures interactive learning and self-management. This collaborative process is consistent with the interactive format of drug abuse prevention programs that have been effective with minority youth. Both the Incredible Years Program and effective drug abuse treatment programs accommodate individual differences by allowing group members to select their own goals and situational examples (Dent *et al.*, 1996). In this way, generic content can be individualized to fit with the specific experiences and backgrounds of group members, without the need for different curricula for participants from different backgrounds. More specific details about the Incredible Years Program are provided in the Methods section.

The program has been used successfully with African American and Hispanic parents of toddlers enrolled in inner-city daycare centers in Chicago (Gross *et al.*, 1999). Two pilot projects with inner city low-income African American (Miller *et al.*, *in press*)

and Hispanic (Miller & Rojas-Flores, in press) families also show promising results. In both the Gross *et al.* and Miller *et al.* samples, mothers who participated in the program exhibited more positive and less harsh parenting than control mothers following the intervention, and their children exhibited fewer disruptive behavior problems. In addition, two randomized evaluation studies with Head Start samples (Webster-Stratton, 1998; Webster-Stratton *et al.*, 2001) contained substantial percentages of minority parents (37 and 63%, respectively). Both of these reported substantial positive effects on parenting and child behaviors. Taken together, this group of studies shows promise for the Incredible Years Parenting Program's effectiveness with minority parents. As single studies, however, there were insufficient sample sizes to analyze results across minority groups.

The current paper extends these findings by combining data from the two prior studies and analyzing treatment response among African American, Asian, Caucasian, and Hispanic mothers. It was hypothesized that parents who received parent training would be more positive and less critical in their parenting than control parents, and that children whose parents received such training would exhibit fewer behavior problems at home than control children. It was expected that these effects would be present across ethnic groups.

METHOD

This report combines results from three cohorts of families enrolled in Puget Sound and Seattle-area Head Start centers who participated in two different studies. The first two cohorts entered Study 1 in the fall of 1993 and 1994 (intervention results from Study 1 are reported separately in Webster-Stratton, 1998). The third cohort entered Study 2 in the fall of 1997 (intervention results from Study 2 are reported separately in Webster-Stratton *et al.*, 2001). Both studies used a quasi-experimental design wherein Head Start centers were matched on several variables (ethnicity of children, number of classrooms, experience of teachers) and randomly assigned to either (a) an experimental condition in which parents received intervention (Incredible Years Program) or (b) a control condition consisting of the regular Head Start curriculum. With the support of the Head Start administration, the project was explained to all Head Start staff and to the parent policy council prior to randomization. All staff understood and agreed to

the research design (intervention vs. control), and no center refused to participate. In total, 14 Head Start centers were assigned randomly to the intervention condition and 9 centers were assigned randomly to the control condition. Participant enrollment procedures for Studies 1 and 2 were identical and are presented in detail elsewhere (Webster-Stratton, 1998; Webster-Stratton *et al.*, 2001).

Families in the intervention and control conditions completed identical assessments at preintervention, postintervention, and 1-year follow-up. Data reported here will focus on child and parent behavior as measured by parent interview and independent home observations of parent-child interactions. All data were collected during two home visits by trained interviewers and observers who were blind to the family's treatment condition. At the home visit, which lasted for 2–3 hrs, parent report data were collected. Parents were given the option of completing questionnaires in interview format, or recording their written answers independently and confidentially. Interviews were translated into Spanish and Vietnamese, if necessary. Parent-child observations, which lasted for approximately 1 hr, were conducted during a second home visit. Parents were paid \$50 upon completion of the home visits at each assessment phase. After fall preintervention assessments were completed, parents from the intervention sites were invited to participate in the Incredible Years Parent Program. In the late spring of the school year and 1 year later (range 9–14 months posttreatment), families from the experimental and control centers were reassessed using the same parent reports and home observations. The number of assessment contacts and procedures were identical for both the intervention and control conditions.

Measures

Parenting Competencies and Involvement

Mother Self-Report

Parenting Practices Interview (PPI): This questionnaire was adapted from the Oregon Social Learning Center's (OSLC) Discipline Questionnaire and was revised for preschoolers. For Study 1, two subscales were used, including Harsh and Inconsistent Discipline. Parents reported the frequency with which they used a number of harsh discipline techniques (seven items on 3-point scales, including raise voice,

yell, slap, spank, or whip). Parents also rated the consistency with which they delivered discipline (16 items on 4-point scales, including consistency in follow-through, letting child get around the rules, checking to make sure child complies with command, punishment depends on mood). Internal consistencies (Chronbach's alphas) were moderate to good, ranging from .63 for Harsh Discipline to .87 for Inconsistent Discipline. Further details about this version of the scale are reported elsewhere (Webster-Stratton, 1998; Webster-Stratton & Hammond, 1998). The questionnaire was revised for ease of administration for Study 2. The updated version contained two subscales that were similar to the previous Harsh and Inconsistent Discipline Scales, and included (a) Harsh Discipline (14 items that parents rate on 7-point scales, including raise voice, hit, threaten, spank, and slap) and (b) Inconsistent Discipline (six items rated on 5-point scales, including letting child get away with things, not following through, punishment depends on mood). Alphas were .75 for Harsh Discipline and .62 for Inconsistent Discipline. Thus, while the content of the Harsh and Inconsistent Discipline Scales was similar across studies, the raw scores were based on different numbers of items and different rating scales. In order to obtain meaningful comparison scores for the combined sample, *z* scores were created for the Harsh and Inconsistent Discipline Scales within each sample. These *z* scores were used in the analyses for the combined sample.

Parent-Teacher Involvement Questionnaire (INVOLVE-P): This scale, also derived from the OSLC interview, was adapted for use with parents of preschool and kindergarten children. The scale evaluates the amount and quality of parents' involvement with their children's education and activities at home and at school. For the combined sample we were interested primarily in the amount of time that parents spent playing, reading, or sharing other activities at home. In Study 1, the Frequency of Activities Scale was measured by asking how often parents engaged in a number of activities with their child (parents rated 11 items on 5-point scales, including read, work on craft, go to library, play together). In Study 2, this scale was measured using similar items (six items rated on 7-point scales, including read together, do projects at home, go places

for fun, have a conversation about something pleasant). Chronbach's alpha was .75.

As with the PPI variables, Frequency of Activities raw scores were not comparable across the two studies because of different numbers of items and different scales. To obtain meaningful comparison scores for the combined sample, *z* scores were created within each sample and used in analyses for the combined sample.

Teacher Report

Parent-Teacher Involvement Questionnaire (INVOLVE-T): This 20-item teacher version of the INVOLVE, requires teachers to rate parents' involvement in their child's education, and their frequency of contact with teachers and school personnel. Identical measures were used in both studies. Three subscales were created: Teacher Bonding with Parent (seven items), Parent Involvement in Education (six items), and Parent Involvement with School/Teacher (seven items). Alphas ranged from .76 to .91.

Home Observations

Dyadic Parent-Child Interactive Coding System Revised (DPICS-R): The DPICS-R (Robinson & Eyberg, 1981; Webster-Stratton, 1985c) is a thoroughly researched observational measure developed specifically for recording behaviors of conduct-problem children and their parents while at home. 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 DPICS-R scores (Webster-Stratton, 1988; Webster-Stratton *et al.*, 1989; Webster-Stratton & Fjone, 1989). The coding system did not change between Studies 1 and 2. In fact, the same staff member trained coders for both studies, and 50% of the total home visits across studies were completed by research assistants who coded for both projects.

In both studies, mothers were observed interacting for 30 min with their child at home. Observations were conducted when all family members were in view of the observer. No telephone calls could be made, and no visitors were allowed to be present. Aside from these changes in family routine, parents are asked to do what they would normally do at the time of the observation.

For each study, approximately eight observers were trained in the DPICS-R system (four observers coded for both studies). Observers were considered reliable after achieving interobserver agreement rates of at least 75% with an already reliable observer on two consecutive occasions. For both studies, reliability data were collected on approximately 30% of home observations.

Three summary variables were extracted for parent behaviors: Total Commands (sum of direct and indirect commands given by a parent); Positive Parenting (sum of positive affect, praise, and physical positives); and Total Critical Statements. Intraclass correlation coefficients (ICCs), which were calculated as a measure of interrater reliability, were .80 for Total Commands, .77 for Positive Parenting, and .77 for Total Critical Statements. Alphas were also adequate at .71, .52, and .73, respectively. Summary variables used for child behavior are reported below.

Coder Impression Inventory (CII): The CII was adapted from the OSLC's Impression Inventory and describes parenting style and child affect and behavior. Coders completed the CII following a 30-min observation. The same instrument was used for Studies 1 and 2. Two summary scores were used: (1) Harsh/Critical Scale (consisting of 12 items characterizing a lack of acceptance, condemnation and disregard for the child, criticisms, sarcasm, neglect and lack of acknowledgement of child's abilities) and (2) Discipline Competence Scale (consisting of 15 items pertaining to the parent's ability to gain compliance utilizing a variety of discipline techniques, clear limit setting, realistic expectations, consistent follow-through, and general confidence). Each scale demonstrated acceptable reliability, with alphas ranging from .84 to .91. Interrater reliability was also adequate, with ICCs ranging from .70 to .97.

Child Competencies and Behavior Problems

Mother Report

Child Behavior Checklist (CBCL): The parent form of the CBCL (Achenbach, 1991) consists of 113 items assessing a variety of behavior problems. It has been shown to discriminate clinic-referred from nonreferred children. Items comprise multiple behavior-problem scales, normed

separately for boys and girls in different age groups. The CBCL was administered in both studies, with the primary scale of interest being the broadband Externalizing Behavior Problems Scale (aggressive, antisocial, and undercontrolled behaviors). The intraclass correlation was .98 for interparent agreement, with an alpha of .84 for test-retest reliability.

Eyberg Child Behavior Inventory (ECBI): The ECBI (Robinson *et al.*, 1980) is a 36-item inventory of conduct-problem behaviors for children ages 2–16 years. This inventory correlates well with independent observations of children's behavior, and differentiates clinic-referred from nonclinic populations. Reliability coefficients for the ECBI scales range from .86 (test-retest) to .98 (internal consistency). The ECBI was administered in both studies, with the primary scale of interest being the Intensity score, an indicator of the frequency with which conduct problems occur.

Social Competence Scale-Parent (P-COMP): This instrument was developed by the Conduct Problem Prevention Research Group (Fast Track) and consists of 12 items assessing parents' perceptions of positive social behaviors, frustration tolerance, and communication skills. This questionnaire was administered in both studies. The total Social Competence score was used in this sample, which yielded an alpha of .89.

Home Observations

DPICS-R: The DPICS-R, described above for parents, also measures disruptive child behaviors. The variable of interest in this study was the sum of Total Deviance, Noncompliance, and Oppositional behaviors (sum of frequency of whine, cry, physical negative, smart talk, yell, destructive, noncompliance). The ICC assessing interrater reliability was .87.

CII: The CII, described above for parenting behaviors, also has two child variables of interest, including Child Positive Affect (e.g., physical or verbal affection and cooperation), which yielded an alpha of .67, and Overall Poor Conduct (no alpha, as it is a single item).

Background and Demographic Variables

In addition to basic demographic information, the following measures were administered in both studies in order to compare risk factors among groups

at baseline: the Brief Anger-Aggression Questionnaire (BAAQ; Maiuro *et al.*, 1987), a six-item measure developed for assessment of anger levels ($\alpha = .82$); the CES-D Depression Scale, a reliable and valid index of self-reported depressive symptoms (Radloff, 1977); and Assessing Environments III—History of Parents' Childhood Parenting Experiences (Berger *et al.*, 1988), which provides information about whether mothers experienced excessive/abusive physical punishment in their childhood (test-retest reliabilities = .84–.85).

Parent Satisfaction

Parent Satisfaction Questionnaire. At 3–4 weeks postintervention and 1-year follow-up, parents completed a comprehensive satisfaction measure that required them to rate the effectiveness of the group leader, the group dynamics, the videotape vignettes, the usefulness of content covered (e.g., play, praise, Time Out), and the effectiveness of the program's methods (e.g., role play, home assignments, group discussion; adapted from the work of Forehand & McMahon, 1981). Five summary scores (7-point scales) are calculated: Overall Satisfaction, Program Usefulness, Leader Satisfaction, Techniques Ease, and Techniques Usefulness. Alphas for these scales were .57, .95, .80, .92, and .93 respectively.

Incredible Years Parenting Intervention

Intervention Content. The intervention consisted of the Incredible Years Parenting Program and was offered during the year that children were in Head Start. A detailed description of the program content, training process, and integrity checks can be found in previous intervention papers (Webster-Stratton, 1998; Webster-Stratton *et al.*, 2001). The program teaches child-directed play skills, positive discipline strategies, effective parenting skills, strategies for coping with stress, and ways to strengthen children's prosocial and social skills. Study 1 offered the curriculum in weekly 2-hr sessions for 8 weeks. On the basis of parent and leader feedback from Study 1, the Study 2 curriculum was lengthened to 12 weekly 2-hr sessions. Both parents and leaders reported that it was difficult to cover all the material in eight sessions, and requested additional information on home-school

collaboration. In Study 2, the intervention included the same basic content (spread over several additional sessions), with new material on helping parents support their children's education (e.g., teaching children to problem-solve, setting up teacher conferences, interactive reading skills, and facilitating peer friendship skills). Participants in parent groups were diverse. Each group consisted of all interested parents from one of the Head Start centers. In both studies the program was translated and offered in Vietnamese and Spanish. In centers where enough parents spoke one of these languages, a Spanish or Vietnamese group was offered by trained native speakers. In other centers, non-English speaking parents participated in an English group using a translator.

The videotaped vignettes represent families from a variety of ethnic backgrounds, with children of various ages (3–7 years), developmental stages, temperaments, and learning abilities. A fundamental tenet of the program is that parents care about their children's welfare and would prefer to behave in ways that facilitate their child's development and success in school. Within the group framework, parents define their own goals and then formulate principles of behavior that will help them reach those goals. The format of the program is easily adapted to meet the needs of parents from many different cultures and backgrounds. While the program content is manualized and consists of distinct content units, the group process supports members' different opinions and goals. For instance, during the unit on play and forming positive relationships with children, parents might discuss the concept of play and what it means to them. Parents discuss whether or not parent-child play was part of their upbringing and then discuss the reasons why play might benefit their children. Lastly, the idea of child-directed play is tied into parents' self-formulated goals for their children. For instance, the group might discuss play as a means of enhancing children's self-concept and independence, increasing obedience and respect for others, improving social skills and interpersonal responsiveness, preparing children for peer interactions, strengthening parent-child bonds, increasing academic readiness, or meeting other goals that parents set. In this way, the core curriculum is individualized so that each parent finds meaning in the principles that are being taught. Different parental values, related to culture or to other family background variables, are easily incorporated into this program, and one group can accommodate a mixture of parents with very different backgrounds and goals.

To maximize parent participation in the intervention, all groups were held at Head Start centers or nearby community centers. Childcare and a meal were provided at each group, and arrangements for transportation were made when necessary. Group leaders called parents between groups to check-in and remind them of the next session.

Group Leaders. In order to receive certification to lead parent groups, new leaders participate in a 3-day workshop led by the program developer. They then colead two groups with a previously certified coleader. These groups are videotaped for review by the program developer prior to certification. In this study, all clinic staff received certification prior to leading groups. Thus, all groups were run by a certified Parenting Clinic leader who was paired with a Family Service Worker (FSW) from the Head Start site. These FSWs received the 3-day training prior to leading their first groups. Group leaders represented diverse backgrounds, but were not necessarily matched to the ethnicity of parents in the groups. Approximately 30% of the FSWs had masters degrees, and the remainder had bachelors degrees in social work, psychology, or human services.

Intervention Integrity. Ongoing supervision in the content and techniques of the intervention was provided for group leaders by the program developer. Parenting clinic coleaders met weekly for group supervision, and Head Start coleaders met monthly for supervision. 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. Examination of weekly records kept by group leaders indicated that all groups covered the required materials, role-plays, homework assignments, and vignettes. Close monitoring, observation of groups by the program developer (at least two observations per group), standardized materials, and comprehensive training were provided for all groups.

Control Centers. Families, teachers, and family service workers in the control centers continued their regular Head Start curriculum including parent education on topics such as stress management, nutrition, self-care, and dental care (these occur once every 2 months in most sites). Control families were assessed by means of the same questionnaires and observations and at the same time points as the families at the Intervention centers.

Participants

Participants included 634 families (Intervention $N = 431$, Control $N = 203$) who provided data at both the baseline and postintervention assessments, and who reported their ethnicity as African American, Asian, Caucasian, or Hispanic. Of these families, 373 were originally in Study 1, and 261 were originally in Study 2. This sample represents approximately 59% (67% for Study 1, 50% for Study 2) of the English, Spanish, and Vietnamese speaking families enrolled in Head Start. Participant children included 343 boys (54%) and 291 girls (46%), with a mean age of 55.96 months ($SD = 4.35$). Study parents included 634 mothers (or other female caregivers) with a mean age of 30.50 ($SD = 7.30$). Fifty-four percent of study mothers were unpartnered. The mean age of fathers was 32.87 ($SD = 8.02$) years. Forty-two percent of the children represented minority groups, as determined by mother report (19% African American, 11% Hispanic, 12% Asian American).

Details about attrition from baseline to the postintervention and follow-up assessments are reported elsewhere (Webster-Stratton, 1998; Webster-Stratton *et al.*, 2001). Briefly, in both studies dropouts in the control group were more likely to exhibit higher levels of some family risk factors, and to have children with more behavior problems than the intervention drop-outs. It is possible that intervention families who were more affected by stressful life circumstances or difficult children continued in the study because of the support they received from the intervention. Control families, on the other hand, did not receive the support of the intervention and may have perceived the study as one more demand in an already stressful lifestyle. In order to rule out effects due to differential attrition by condition, two-factor ANOVAs were conducted with condition and posttreatment attrition status as independent variables, and each of the outcome measures as dependent variables. There were no significant Condition \times Attrition interactions on any of the dependent variables at posttreatment.

It is also important to note that among families who completed baseline assessments, there was not differential dropout at postassessment or 1-year follow up by minority status in either of the original studies. In Study 1 there was differential *enrollment* for minorities versus Caucasian families, with 28% of minority and 17% of Caucasian mothers choosing not to participate in the baseline assessments,

$\chi^2(1, N = 426) = 7.95, p < .05$. Differential enrollment by ethnicity could not be examined in Study 2, as demographic data were not collected for nonenrolling families.

One year after the postintervention assessments, all families were recontacted for home interviews and observations. Because the sample was quite mobile, a variety of strategies were employed to increase participant retention. During the year that children were attending Head Start, FSWs provided us with updates each time a family moved or changed phone numbers. When children left Head Start, parents were asked where the child would attend kindergarten, and at least three contact numbers were obtained from each family. Families were also given magnets with project phone numbers and were reminded to call for their follow-up assessments to receive their \$50 gift certificates. During the months between the post- and follow-up assessments, each family was contacted monthly to ensure that project phone and address records were accurate. At the 1-year follow-up, 159 control mothers (78.3% of the postsample) and 315 intervention mothers (73.1% of the postsample) completed assessments. Mothers who did not complete the follow-up assessments will be referred to as "drops." It should be noted, however, that the vast majority of drops were mothers who could not be located due to moves or telephone changes. Drops and completers were compared on baseline measures of all demographic variables (including ethnicity) and risk factors (24 variables), and parent and child behaviors (18 variables). For the entire sample (intervention and control), the only significant difference between drops and completers was on the CII Overall Poor Conduct coder rating; coder ratings indicated that drop children had significantly poorer conduct ratings than completers $t(596) = 2.47, p = .01$. Analyses indicated no difference in the number of mothers who dropped from the intervention and the control groups. Drops and completers were also compared separately across the intervention and control conditions on all the demographic variables, risk factors, and parent and child behaviors. For the control group, drops exhibited significantly *lower* baseline reports of father alcohol use, higher rates of CPS reports, and *higher* ratings of child positive affect. In the intervention group, the only difference between drops and controls was a *higher* rate of poor child conduct on the CII. In order to rule out effects due to differential attrition by condition, we conducted two-factor ANOVAs with condition and follow-up attrition status as independent variables and each of the outcome measures

as dependent variables. There were no significant interactions between condition and attrition status on any of the dependent variables at follow-up.

RESULTS

Data Analytic Strategy: Analyses proceeded in four stages. At stage one, preintervention data were examined by intervention status and ethnicity. First, baseline scores were compared across the intervention and control groups on all demographic variables, risk factors, and outcome measures, using ANOVAs for continuous measures and chi-square analyses for categorical measures. These analyses were conducted both for descriptive purposes, and to identify variables requiring statistical control in later analytic stages. In addition, preintervention scores on the demographic and risk variables were compared across ethnic groups, again using ANOVAs for continuous measures and chi-square analyses for categorical measures. Next, intervention effects were examined at posttreatment and 1-year follow-up using ANCOVAs in which baseline scores served as covariates to control for pretest functioning.

At stage three, relations between ethnicity and treatment response were assessed using hierarchical linear modeling (HLM). This approach was chosen because families were nested within Head Start centers, requiring that center and ethnicity effects be modeled separately. This was particularly important given that ethnicity was not distributed equally across centers, $\chi^2(39) = 331.46, p < .001$. If ignored, center effects could therefore masquerade as ethnicity effects on the outcome measures. Growth trajectories on all outcome variables were modeled by constructing intercepts- and slopes-as-outcomes models (Bryk & Raudenbush, 1992) using HLM5 (Raudenbush *et al.*, 2000). This approach involves calculating least squares regression lines through scores on each outcome measure (e.g., Harsh Discipline) at each measurement point (i.e., baseline, postintervention, follow-up) for each participant (Level 1). Tests of variability in intercepts and slopes are then conducted within participants (Level 2), and across groups (Level 3). Because ethnicity is a within-participant variable, it was modeled at Level 2. In contrast, Head Start center effects, a between-participants variable, were modeled at Level 3. Significant Level 3 variability in slopes would suggest center effects on trajectories in the outcome measures. Because the number of participants was not equal across centers (range = 9–115), full maximum likelihood estimation

was employed (see Bryk & Raudenbush, 1992). For analyses with no missing data points, there were 1,902 repeated measures observations at Level 1, nested within 634 children at Level 2, nested within 17 Head Start centers at Level 3. The generic conditional model was as follows:

Level 1 (repeated measure)

$$\text{Outcome (DV)} = \Pi_0 + \Pi_1(\text{assessment point}) + e$$

Level 2 (individual)

$$\begin{aligned}\Pi_0 &= \beta_{00} + \beta_{01}(\text{African American}) + \beta_{02}(\text{Asian}) \\ &\quad + \beta_{03}(\text{Hispanic}) + \beta_{04}(\text{intervention}) \\ &\quad + \beta_{05}(\text{child age}) + \beta_{06}(\text{maternal education}) \\ &\quad + \beta_{07}(\text{family income}) + r_0 \\ \Pi_1 &= \beta_{10} + \beta_{11}(\text{African American}) + \beta_{12}(\text{Asian}) \\ &\quad + \beta_{13}(\text{Hispanic}) + \beta_{14}(\text{intervention}) \\ &\quad + \beta_{15}(\text{child age}) + \beta_{16}(\text{maternal education}) \\ &\quad + \beta_{17}(\text{family income}) + r_1\end{aligned}$$

Level 3 (center)

$$\beta_{00} = \mu_{00} + u_{00}$$

⋮

$$\beta_{16} = \mu_{16}$$

Ethnicity was represented by creating dummy coded vectors for each group (African American, Asian, Hispanic), which were entered as Level 2 predictors of slopes in the outcome measures. Because entering dummy coded vectors for all four ethnic groups would create multicollinear models, Caucasian group status was omitted. This choice was based on the primary purpose of this study, to assess the efficacy of the Incredible Years Parenting Program in traditionally underrepresented groups. Note that child age, maternal education, and family income were also entered as within-participant predictors at Level 2. These variables were included to control for both SES effects and baseline differences across ethnic groups (see below).

Finally, the clinical significance of intervention effects and parent satisfaction with the Incredible Years Program were assessed using ANOVAs for continuous measures and chi-square analyses for categorical measures.

Before presenting baseline scores comparing the intervention and control groups, it should be noted that comparisons of basic demographic information

across Studies 1 and 2 revealed few group differences. Families in the two studies did not differ in terms of child age, child conduct problems, percentage of families receiving financial aid, parent reports of parenting style, or observations of positive parenting. However, mothers in Study 1 did report higher levels of some risk factors including depression, alcohol abuse, and low education than mothers in Study 2. Mothers in Study 1 were also observed to be more critical and less nurturing with their children than mothers in Study 2.

Preintervention Scores by Intervention Group Status

Descriptive statistics and comparisons between the intervention and control groups at baseline are reported in Table 1. Intervention mothers attended an average of 7.16 parenting sessions ($SD = 2.92$). Of the 431 mothers, 310 (72%) attended at least half of the sessions offered (at least 4 out of 8 sessions in Study 1 and at least 6 out of 12 in Study 2), 52 (12%) attended less than half of the sessions, and 69 (16%) attended no sessions. Of note, 43% of the sample children, collapsed across groups, were rated in the clinical range on the ECBI. In comparison, 20% scored in the clinical range on the CBCL Externalizing Scale ($T > 63$).

Comparisons between the intervention and control groups yielded several significant differences. Mothers in the intervention group reported significantly lower incomes, greater histories of mental illness, and higher scores for depression and anger than control mothers. Mothers in the intervention group also reported using more harsh and inconsistent discipline than mothers in the control group. Independent coders confirmed this pattern, with intervention mothers observed to be more harsh and less positive in their interactions with their children than control mothers. Intervention children were also observed to exhibit more negative behaviors with their mothers than did control children. Additionally, more intervention children scored in the clinical range on the ECBI than control children. Thus, families who participated in the study from the intervention schools exhibited more child problems and more difficulty with their parenting. Although data were not available on families who did not enroll in the project, these baseline differences may be due to differential enrollment in the intervention and control sites. Other prevention projects have reported similar findings, suggesting that it is easier to recruit and retain stressed families at intervention versus control sites (Reid *et al.*, 1999). As noted in our discussion

Table 1. Demographic, Risk Factors, and Outcome Variables by Intervention Status

| Demographic and risk factors | Control | | Intervention | | Total | | <i>t</i> test |
|--|----------|-----------|--------------|-----------|----------|-----------|----------------------------|
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | |
| Mother age | 30.39 | 6.81 | 30.55 | 7.53 | 30.50 | 7.30 | <i>ns</i> |
| Father age | 33.29 | 8.25 | 32.65 | 7.91 | 32.87 | 8.02 | <i>ns</i> |
| Child age (months) | 56.43 | 4.32 | 55.74 | 4.35 | 55.96 | 4.35 | <i>ns</i> |
| Number of children at home | 2.50 | 1.57 | 2.45 | 1.31 | 2.46 | 1.40 | <i>ns</i> |
| Income | 3.15 | 1.59 | 2.78 | 1.35 | 2.90 | 1.44 | <i>t</i> (622) = 3.01** |
| Attendance | — | — | 7.16 | 2.92 | 7.16 | 2.92 | |
| | % | <i>N</i> | % | <i>N</i> | % | <i>N</i> | χ^2 |
| Child gender (male) | 57 | 116 | 53 | 227 | 54 | 343 | <i>ns</i> |
| ECBI conditional probability (>10) | 38 | 76 | 46 | 188 | 43 | 264 | $\chi^2(1) = 3.66^\dagger$ |
| CBCL Externalizing <i>T</i> > 63 | 21 | 42 | 19 | 79 | 20 | 121 | <i>ns</i> |
| Child minority | 45 | 93 | 45 | 193 | 45 | 286 | <i>ns</i> |
| Financial aid | 83 | 165 | 87 | 371 | 85 | 536 | <i>ns</i> |
| Mother single | 51 | 104 | 56 | 240 | 54 | 344 | <i>ns</i> |
| Father criminal history | 23 | 23 | 20 | 43 | 21 | 66 | <i>ns</i> |
| Father mental illness history | 5 | 5 | 6 | 13 | 6 | 18 | <i>ns</i> |
| Father drug/alcohol history | 33 | 33 | 30 | 65 | 31 | 98 | <i>ns</i> |
| Mother criminal history | 5 | 10 | 8 | 30 | 7 | 40 | <i>ns</i> |
| Mother mental illness history | 8 | 16 | 14 | 55 | 12 | 71 | $\chi^2(1) = 4.72^*$ |
| Mother drug/alcohol history | 16 | 32 | 24 | 92 | 31 | 98 | $\chi^2(1) = 4.50^*$ |
| Mother depress (CES-D > 16) | 32 | 64 | 42 | 170 | 38 | 234 | $\chi^2(1) = 5.39^*$ |
| Mother anger (BAAQ > 9) | 24 | 39 | 24 | 96 | 22 | 135 | <i>ns</i> |
| Mother reported to CPS | 12 | 23 | 16 | 61 | 15 | 84 | <i>ns</i> |
| Mother physically abused as child | 31 | 61 | 36 | 148 | 35 | 209 | <i>ns</i> |
| Mother low education (<12) | 26 | 52 | 29 | 122 | 28 | 174 | <i>ns</i> |
| Mother spank/hit/slap frequency | 19 | 38 | 25 | 109 | 23 | 147 | <i>ns</i> |
| Outcome variables | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>t</i> test |
| Harsh discipline ^a (parent report) | -18.28 | 0.93 | 0.11 | 1.03 | 0.01 | 1.00 | <i>t</i> (601) = -3.31*** |
| Inconsistent discipline ^a (parent report) | -0.13 | 0.89 | 0.05 | 1.03 | -0.001 | 1.00 | <i>t</i> (598) = -2.04* |
| Harsh/critical (CII) | 1.35 | 0.43 | 1.43 | 0.46 | 1.40 | 0.44 | <i>t</i> (568) = -2.16* |
| Discipline competence (CII) | 2.35 | 0.40 | 2.27 | 0.43 | 2.30 | 0.42 | <i>ns</i> |
| Commands (DPICS) | 44.57 | 24.11 | 44.85 | 29.40 | 44.34 | 28.13 | <i>ns</i> |
| Positive parenting (DPICS) | 24.41 | 18.01 | 21.48 | 15.88 | 22.16 | 16.63 | <i>t</i> (576) = 1.99* |
| Critical (DPICS) | 18.71 | 15.46 | 18.60 | 17.20 | 18.66 | 16.60 | <i>ns</i> |
| Frequency of activities ^a (INV-P) | 0.16 | 0.90 | -0.02 | 1.02 | -0.01 | 0.98 | <i>ns</i> |
| Parent involved education (INV-T) | 3.37 | 0.99 | 3.40 | 0.97 | 3.39 | 0.98 | <i>ns</i> |
| Parent bond with school (INV-T) | 2.33 | 0.64 | 2.32 | 0.69 | 0.61 | 2.31 | <i>ns</i> |
| Teacher bond with parent (INV-T) | 2.63 | 0.58 | 2.67 | 0.49 | 2.66 | 0.52 | <i>ns</i> |
| CBCL Externalizing <i>T</i> score | 54.32 | 9.58 | 54.08 | 10.21 | 54.05 | 10.05 | <i>ns</i> |
| ECBI Intensity | 104.34 | 30.48 | 105.60 | 33.03 | 104.58 | 32.17 | <i>ns</i> |
| P-COMP social competence | 25.38 | 7.00 | 24.86 | 8.18 | 25.03 | 7.80 | <i>ns</i> |
| Child DNN ^b (DPICS) | 34.23 | 24.03 | 38.78 | 26.82 | 36.81 | 26.04 | <i>t</i> (576) = -1.98* |
| Child positive affect (CII) | 2.30 | 0.46 | 2.31 | 0.49 | 2.31 | 0.48 | <i>ns</i> |
| Child conduct (CII) | 3.08 | 1.17 | 3.28 | 1.31 | 3.18 | 1.27 | <i>ns</i> |

^a *z* score.^b Deviance + noncompliance + oppositional behavior.[†] *p* < .1. * *p* < .05. ** *p* < .01. *** *p* < .001.

of differential attrition between intervention and control participants, stressed families in the intervention condition may have signed up for and remained in the project because of the support offered. In contrast, high-risk control families did not receive such support.

Effects of Ethnicity at Baseline

Because a major aim of this paper was to examine minority differences in program outcome, baseline demographic information and reports of risk factors by ethnicity were examined. For purposes of this

paper, groups were determined by ethnicity of the *child* according to mother report. Baseline scores on all demographic variables, risk factors, and outcome measures are reported by ethnicity in Table 2. As indicated, a significant attendance effect was found. Post hoc analyses using the Tukey test for unequal *ns* indicated that Asian mothers attended significantly more sessions than Caucasian mothers. There were also significant group differences at baseline on variables such as single parent status, education, CPS involvement, and criminal history. Of greater interest for the present study were baseline differences in the parent and child outcome measures. For these variables, omnibus *F*-statistics were first computed via ANOVA, which are reported in the top half of Table 2. When these were significant, pairwise comparisons were examined using the Tukey test for unequal *ns*. Results from these post hoc tests are reported in the bottom section of Table 2.

Intervention Effects

All results are reported using an "intent-to-treat" approach. Thus, we included all mothers in our sample, regardless of whether or not they attended the parenting groups. This provides a more conservative estimate of the effects of the intervention. Results of the ANCOVAs assessing treatment effects are reported in Table 3. At posttest, there were significant intervention effects for 10 of the 11 parent variables and 2 of the 6 child variables. At 1-year follow-up, there were significant intervention effects for 5 of the 11 parent variables and 1 of the 6 child variables. All results were in the predicted direction, with intervention mothers and children showing higher levels of positive behaviors and lower levels of negative behaviors than controls.

Site and Ethnicity Effects

Results of the HLM analyses assessing ethnicity and site effects on treatment response are presented in Table 4. In general, few differences in treatment responsiveness were observed across ethnic groups. Out of 51 ethnicity effects tested, only three reached statistical significance. Because this does not exceed the number of significant results expected by chance, these results will not be interpreted.

Significant site effects were observed for parent report of harsh discipline, and for variables assessing

parental bonding and involvement with teachers. Site effects on classroom variables are not surprising given that each teacher completed measures on all children in her class. Thus, reporting biases and variations in teacher's abilities to involve parents are likely to have contributed to site effects. Note that intervention effects remained significant for 11 of the 17 outcome measures after removing variance attributable to the ethnicity and site.

Clinical Significance at Postintervention

A major concern is the extent to which the intervention produced clinically significant mother and child improvements in the portion of the sample exhibiting high-risk behaviors at baseline. Because the target class of behaviors for the intervention were parenting style and effectiveness, "mother responders" were defined as those who exhibited a reduction of at least 30% from baseline in total critical behaviors. Only mothers who were in the high-risk range at baseline were included in this analysis. High-risk mothers were defined as having more than 10 critical statements in 30 min of observation ($N = 357$; 56% of total) based on previous studies comparing referred and nonreferred families on this variable (Webster-Stratton & Hammond, 1998; Webster-Stratton & Lindsay Woolley, 1999). Independent observations of mother critical behaviors were chosen as the primary parent outcome variable because they are theoretically less biased than mother self-reports of physically negative, verbally negative, or harsh discipline strategies, and because of the low frequency of observable physical negative discipline during home visits. Moreover, prior research has demonstrated 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). Other researchers (e.g., Reid *et al.*, 1981) have also found high rates of criticism or "nattering" to be related to conduct problems. Finally, 30% improvement has been used as a criterion to indicate clinically significant improvement when there are no established norms for behavioral observation data (e.g., Patterson, 1982; Patterson *et al.*, 1982; Webster-Stratton *et al.*, 1989).

Second, clinically significant improvements in child conduct were determined by comparing intervention and control children who were in the high-risk range at baseline and exhibited a 30% reduction at postintervention. High-risk children were defined

Table 2. Baseline Demographics, Risk Factors, Parent and Child Outcome Measures by Ethnicity

| Variable | Hispanic | | African American | | Caucasian | | Asian | | ANOVA |
|---|-----------------------|-------------------------------|------------------------|----------------------------------|---------------------------|-----------------------------------|----------|-----------|---------------------------|
| | <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>Demographic and risk factors</i> | | | | | | | | | |
| Mother age | 29.08 | 5.81 | 30.75 | 8.46 | 30.44 | 7.21 | 31.85 | 6.93 | <i>ns</i> |
| Father age | 31.62 | 5.88 | 32.80 | 10.74 | 32.24 | 7.47 | 38.42 | 8.86 | $F(3, 330) = 6.95^{***}$ |
| Child age (months) | 54.89 | 3.31 | 55.83 | 4.43 | 56.33 | 4.39 | 55.36 | 4.68 | $F(3, 631) = 2.84^*$ |
| Number of children at home | 2.69 | 1.44 | 2.44 | 1.42 | 2.39 | 1.35 | 2.64 | 1.55 | <i>ns</i> |
| Income | 3.18 | 1.42 | 2.66 | 1.39 | 2.92 | 1.46 | 2.95 | 1.42 | <i>ns</i> |
| Attendance (intervention group) | 7.71 | 3.84 | 7.53 | 3.27 | 6.70 | 2.54 | 9.03 | 2.85 | $F(3, 361) = 7.98^{***}$ |
| | % | <i>N</i> | % | <i>N</i> | % | <i>N</i> | % | <i>N</i> | χ^2 |
| Child gender (male) | 55 | 39 | 57 | 68 | 52 | 194 | 57 | 42 | <i>ns</i> |
| ECBI conduct problem (>10) | 27 | 19 | 42 | 49 | 43 | 152 | 66 | 44 | $\chi^2(3) = 21.14^{***}$ |
| CBCL Externalizing <i>T</i> > 63 | 6 | 4 | 15 | 18 | 25 | 89 | 14 | 10 | $\chi^2(3) = 17.26^{***}$ |
| Financial aid | 94 | 65 | 85 | 101 | 85 | 310 | 82 | 60 | <i>ns</i> |
| Mother single | 34 | 24 | 76 | 91 | 52 | 194 | 48 | 35 | $\chi^2(3) = 36.14^{***}$ |
| Father criminal history | 13 | 6 | 24 | 8 | 25 | 47 | 1 | 5 | $\chi^2(3) = 7.67^*$ |
| Father mental illness history | 4 | 2 | 9 | 3 | 6 | 11 | 4 | 2 | <i>ns</i> |
| Father drug/alcohol history | 20 | 9 | 27 | 9 | 37 | 68 | 24 | 12 | <i>ns</i> |
| Mother criminal history | 1 | 5 | 2 | 11 | 4 | 23 | 0 | 1 | <i>ns</i> |
| Mother mental illness history | 11 | 7 | 12 | 13 | 13 | 46 | 8 | 5 | <i>ns</i> |
| Mother drug/alcohol history | 20 | 9 | 27 | 9 | 36 | 68 | 24 | 12 | <i>ns</i> |
| Mother depress (CES-D > 16) | 27 | 18 | 38 | 45 | 39 | 137 | 49 | 34 | <i>ns</i> |
| Mother anger (BAAQ > 9) | 15 | 10 | 18 | 21 | 27 | 95 | 13 | 9 | $\chi^2(3) = 10.45^*$ |
| Mother reported to CPS | 6 | 4 | 9 | 10 | 19 | 66 | 7 | 4 | $\chi^2(3) = 15.20^{**}$ |
| Mother physically abused as child | 50 | 35 | 23 | 27 | 34 | 119 | 39 | 28 | $\chi^2(3) = 14.96^{**}$ |
| Mother low education (<12) | 59 | 41 | 14 | 17 | 22 | 79 | 51 | 37 | $\chi^2(3) = 70.30^{***}$ |
| Mother spank/hit/slap frequency | 24 | 17 | 19 | 23 | 27 | 99 | 11 | 8 | $\chi^2(3) = 9.98^*$ |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | ANOVA |
| <i>Parent outcomes</i> | | | | | | | | | |
| Mother report | | | | | | | | | |
| Harsh discipline ^a (parent) | -0.04 | 1.06 | 0.09 | 0.96 | -0.04 | 0.97 | 0.18 | 1.11 | <i>ns</i> |
| Inconsistent discipline ^a (parent) | -0.02 | 0.84 | -0.04 | 1.10 | 0.05 | 1.00 | -0.18 | 0.97 | <i>ns</i> |
| Frequency of activities ^a (INV-P) | 0.31 | 0.98 | -0.14 | 0.98 | 0.03 | 0.95 | -0.35 | 1.04 | $F(3, 629) = 6.43^{***}$ |
| Observations | | | | | | | | | |
| Harsh/critical (CII) | 1.24 | 0.29 | 1.41 | 0.44 | 1.43 | 0.48 | 1.39 | 0.37 | $F(3, 607) = 3.55^{**}$ |
| Discipline competence (CII) | 2.42 | 0.31 | 2.26 | 0.41 | 2.29 | 0.44 | 2.31 | 0.40 | <i>ns</i> |
| Commands (DPICS) | 48.69 | 34.06 | 48.75 | 30.55 | 42.86 | 25.03 | 39.74 | 31.99 | <i>ns</i> |
| Positive (DPICS) | 21.20 | 16.56 | 21.84 | 16.34 | 23.39 | 16.82 | 16.64 | 15.14 | $F(3, 606) = 3.02^*$ |
| Critical (DPICS) | 15.84 | 14.67 | 21.17 | 16.61 | 19.11 | 17.09 | 14.44 | 14.80 | $F(3, 606) = 2.99^*$ |
| Teacher report | | | | | | | | | |
| Parent involved education (INV-T) | 3.39 | 0.91 | 3.43 | 1.05 | 3.34 | 0.96 | 3.58 | 1.01 | <i>ns</i> |
| Parent bond with school (INV-T) | 2.08 | 0.61 | 2.31 | 0.64 | 2.43 | 0.68 | 1.93 | 0.61 | $F(3, 605) = 13.98^{***}$ |
| Teacher bond with parent (INV-T) | 2.59 | 0.48 | 2.61 | 0.51 | 2.67 | 0.53 | 2.72 | 0.48 | <i>ns</i> |
| <i>Child outcomes</i> | | | | | | | | | |
| Mother report | | | | | | | | | |
| CBCL Externalizing <i>T</i> score | 50.09 | 9.31 | 52.62 | 9.53 | 55.61 | 9.98 | 52.39 | 10.46 | $F(3, 609) = 8.07^{***}$ |
| ECBI Intensity | 87.71 | 29.27 | 101.51 | 32.43 | 112.68 | 29.70 | 84.75 | 31.41 | $F(3, 606) = 25.49^{***}$ |
| P-COMP social competence | 26.74 | 6.78 | 26.87 | 7.44 | 25.04 | 7.47 | 20.09 | 9.03 | $F(3, 607) = 13.09^{***}$ |
| Observations | | | | | | | | | |
| Child DNN ^b (DPICS) | 38.07 | 29.08 | 36.94 | 27.85 | 36.76 | 23.64 | 35.44 | 32.28 | <i>ns</i> |
| Child positive affect (CII) | 2.52 | 0.41 | 2.23 | 0.49 | 2.29 | 0.49 | 2.40 | 0.40 | $F(3, 606) = 7.04^{***}$ |
| Child conduct (CII) | 2.79 | 1.08 | 3.15 | 1.17 | 3.30 | 1.30 | 3.03 | 1.25 | $F(3, 597) = 3.66^{**}$ |
| | Hispanic vs. Asian | African American vs. Asian | Caucasian vs. Asian | African American vs. Hispanic | Caucasian vs. Hispanic | African American vs. Caucasian | | | |
| <i>Post hoc (Tukey test for unequal n)</i> | | | | | | | | | |
| Harsh/critical (CII) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Discipline competence (CII) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Total commands (DPICS) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Positive parenting (DPICS) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Critical statements (DPICS) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Frequency of activities ^a (INV-P) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Parent bond with school (INV-T) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| CBCL Externalizing <i>T</i> score | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| ECBI Intensity | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| P-COMP social competence | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Child positive affect (CII) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |
| Child conduct (CII) | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | <i>ns</i> | | | |

Note. Maximum number of cases with pre-post data: Hispanic = 71, African American = 120, Caucasian = 370, Asian = 73, Total = 634.

^a *z* score

^b Deviance + noncompliance + oppositional behavior.

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

Table 3. Parent and Child Behavior Intervention Effects by Group (Intervention vs. Control)

| | ANCOVA (pre-post) | | | | ANCOVA (prefollow-up) | | | |
|--|-------------------|-------------------------|---------------|--------------|-----------------------|-------------------------|---------------|--------------|
| | (Group) <i>F</i> | Effect size η^2 | Adjusted mean | | (Group) <i>F</i> | Effect size η^2 | Adjusted mean | |
| | | | Control | Intervention | | | Control | Intervention |
| Harsh discipline ^a (PPI) | 9.41** | .015 | 0.17 | -0.07 | 20.44*** | .042 | 0.27 | -0.12 |
| Inconsistent discipline ^a (PPI) | 5.10* | .008 | 0.11 | -0.05 | 6.27** | .013 | 0.13 | -0.07 |
| Frequency of activities ^a (INV-P) | 1.01 | .008 | -0.07 | -0.05 | 3.21 [†] | .007 | -0.11 | 0.04 |
| Harsh/critical (CII) | 4.16* | .007 | 1.37 | 1.31 | 0.90 | .002 | 1.32 | 1.28 |
| Discipline competence (CII) | 10.99*** | .019 | 2.35 | 2.45 | 0.70 | .002 | 2.42 | 2.46 |
| Parent command (DPICS) | 11.44*** | .02 | 44.12 | 36.53 | 5.22* | .012 | 41.86 | 36.06 |
| Parent positive (DPICS) | 12.41*** | .021 | 23.63 | 29.00 | 7.87** | .019 | 23.15 | 28.21 |
| Parent critical (DPICS) | 22.80*** | .38 | 18.58 | 12.86 | 5.13* | .012 | 17.54 | 14.17 |
| Parent involved education (INV-T) | 7.70** | .013 | 3.36 | 3.55 | 2.54 | .020 | 2.10 | 2.38 |
| Parent bond school (INV-T) | 21.30*** | .035 | 2.22 | 2.44 | 1.94 | .007 | 1.85 | 1.97 |
| Teacher bond parent (INV-T) | 20.94*** | .035 | 2.61 | 2.77 | 0.08 | .000 | 3.09 | 3.12 |
| CBCL External <i>T</i> score | 0.49 | .001 | 51.41 | 51.86 | 1.09 | .002 | 52.37 | 51.57 |
| ECBI Intensity | 2.72 [†] | .005 | 97.85 | 94.93 | 4.78* | .010 | 99.34 | 94.53 |
| P-COMP social competence | 0.53 | .001 | 26.90 | 26.52 | 0.01 | .000 | 27.09 | 27.07 |
| Child DNN ^b (DPICS) | 12.555*** | .021 | 36.21 | 28.99 | 1.51 | .004 | 29.89 | 27.25 |
| Child positive affect (CII) | 2.15 | .004 | 2.40 | 2.46 | 0.01 | .000 | 2.49 | 2.49 |
| Child conduct (CII) | 9.51** | .017 | 3.05 | 2.72 | 0.97 | .001 | 2.62 | 2.73 |

^a*z* score^bDeviance + noncompliance + oppositional behavior.[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

as exhibiting nine or more deviant and noncompliant behaviors in 30 min of interactions with their mothers at home ($N = 281$; 44% of total). This cutoff has discriminated between clinic and nonclinic samples in previous studies (Webster-Stratton, 1985a,b). Lastly, clinically significant changes in children's positive affect were defined as a 30% improvement in coder ratings on the CII. For this variable, the entire sample of children was included.

Sixty-two percent of the high-risk mothers in the intervention condition exhibited a 30% reduction in observed critical statements during home observations at postassessment, compared to 42% of the high-risk mothers in the control condition, $\chi^2(1, N = 357) = 13.41, p < .001$. Independent observations of child behaviors at home indicated that 67% of the high-risk children in the intervention condition exhibited a 30% reduction in negative behaviors at postassessment compared with 52% of the control children, $\chi^2(1, N = 281) = 5.53, p < .02$. Coder ratings revealed that 52% of children in the intervention condition exhibited a 30% increase in Positive Affect compared to 45% of control children, $\chi^2(1, N = 484) = 5.21, p = .02$. Analyses of clinical significance by ethnic group status was not possible because of the small sample size for each group when selecting only

mothers and children who fell in the high-risk range at baseline.

Clinical Significance at 1-Year Follow-Up

At follow-up, the significant group difference in the number of children exhibiting a 30% increase in Positive Affect from baseline remained. In the intervention group 52% of children exhibited a 30% increase from baseline, while only 37% of control children exhibited this difference. $F(1, 355) = 8.04, p = .005$. Clinically significant reductions in observations of mother criticals or child behavior problems were not maintained.

Parent Satisfaction

Mother reports of overall parent satisfaction were very high (see Table 5). Mean summary scores for the total sample ranged from 5.51 to 6.24 on a 7-point scale in which high numbers indicated more satisfaction. To examine differences in satisfaction by ethnicity, one-way ANOVAs with one factor (ethnicity) were conducted. When an ANOVA was significant, post hoc pairwise comparisons were examined

Table 4. HLM Analyses of Site, Intervention, and Ethnicity Effects on Outcome

| | Level 2 fixed effects | | | | | | | | | | Level 3 effect of site | |
|---|-----------------------|----------|------------------|---------|--------------|----------|--------------|---------|-------------|---------|------------------------|--------------|
| | Intervention | | African American | | Asian | | Hispanic | | | | | |
| | Coeff. (SE) | t ratio | Coeff. (SE) | t ratio | Coeff. (SE) | t ratio | Coeff. (SE) | t ratio | Coeff. (SE) | t ratio | Coeff. (SE) | $\chi^2(16)$ |
| Harsh discipline (parent report) | -0.58 (0.27) | -2.17* | 0.09 (0.19) | 0.50 | 0.18 (0.33) | 0.56 | -0.09 (0.20) | -0.46 | 0.14 | 0.14 | 35.31** | |
| Inconsistent discipline (parent report) | -0.11 (0.04) | -2.56** | -0.02 (0.05) | -0.35 | 0.02 (0.06) | 0.30 | -0.06 (0.07) | -0.90 | -0.03 | -0.03 | 18.56 | |
| Harsh/critical (CII) | -0.01 (0.02) | -0.62 | 0.02 (0.03) | 0.52 | -0.04 (0.03) | -1.67 | 0.01 (0.03) | 0.01 | 0.01 | 0.01 | 24.54 | |
| Discipline competence (CII) | 0.05 (0.02) | 2.46** | -0.01 (0.03) | -0.19 | 0.03 (0.03) | 1.27 | -0.02 (0.03) | -0.87 | 0.01 | 0.01 | 23.62 | |
| Parent commands (DPICS) | -2.76 (0.65) | -4.27*** | 2.18 (1.20) | 1.81 | 0.44 (1.26) | 0.35 | 3.16 (1.80) | 1.75 | 0.01 | 0.01 | 4.35 | |
| Positive parenting (DPICS) | 2.70 (0.97) | 2.79** | -0.48 (1.05) | -0.46 | -1.67 (0.68) | -2.45 | -1.44 (1.01) | -1.42 | 1.64 | 1.64 | 24.70 | |
| Critical statements (DPICS) | -1.57 (0.64) | -2.45** | 1.78 (1.18) | 1.52 | -0.70 (1.08) | 0.65 | 0.67 (1.16) | 0.58 | 0.14 | 0.14 | 16.87 | |
| Frequency of activities (INV-P) | 0.10 (0.04) | 2.49** | 0.13 (0.05) | 2.77** | 0.09 (0.06) | 1.55 | -0.08 (0.05) | -1.52 | 0.01 | 0.01 | 13.55 | |
| Parent involved education (INV-T) | 0.10 (0.05) | 1.93* | -0.01 (0.04) | -0.22 | -0.07 (0.06) | -1.20 | 0.03 (0.05) | 0.61 | 0.01 | 0.01 | 29.19* | |
| Parent bond with school (INV-T) | 0.15 (0.09) | 1.60 | -0.03 (0.03) | -1.13 | 0.03 (0.05) | 0.57 | -0.03 (0.03) | -0.89 | 0.02 | 0.02 | 72.86*** | |
| Teacher bond parent (INV-T) | 0.10 (0.05) | -2.19* | 0.03 (0.03) | 0.96 | -0.04 (0.04) | -0.93 | 0.01 (0.04) | 0.34 | 0.01 | 0.01 | 63.92*** | |
| CBCL Externalizing T score | -0.14 (0.45) | 0.76 | 0.11 (0.36) | 0.32 | -0.82 (0.44) | -1.86 | -0.92 (0.56) | -1.65 | 0.08 | 0.08 | 22.37 | |
| ECBI Intensity | -2.30 (0.83) | -2.76** | 0.20 (0.89) | 0.23 | -0.34 (1.47) | -0.23 | 0.77 (1.11) | 0.70 | 0.26 | 0.26 | 13.53 | |
| P-COMP social competence | -0.18 (0.42) | -0.43 | -0.24 (0.36) | -0.67 | 1.11 (1.10) | 1.01 | 0.76 (0.48) | 1.60 | 0.18 | 0.18 | 21.36 | |
| Child DNN ^a (DPICS) | -2.46 (0.99) | 2.49** | 2.15 (1.26) | 1.71 | 1.04 (1.61) | -0.65 | 3.93 (1.67) | 2.36* | 0.06 | 0.06 | 12.02 | |
| Child positive affect (CII) | -0.01 (0.02) | -0.62 | 0.01 (0.03) | 0.16 | -0.12 (0.03) | -4.01*** | -0.04 (0.03) | -1.52 | 0.01 | 0.01 | 16.09 | |
| Child conduct (CII) | -0.02 (0.05) | -0.36 | 0.04 (0.07) | 0.59 | -0.04 (0.05) | -0.88 | 0.17 (0.11) | 1.64 | 0.01 | 0.01 | 18.90 | |

Note. Level 2 fixed effects test the impact of the intervention and ethnic group status on slopes for each measure across the three assessment waves. Level 3 variance components test the effect of intervention sites on slopes for each measure.

^aDeviance + noncompliance + oppositional behavior.

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

Table 5. Parent Satisfaction

| | Hispanic | | African American | | Caucasian | | Asian | | Total | | |
|--|---------------------|-----------|----------------------------|-----------|----------------------|-----------|-------------------------------|-----------|------------------------|-----------|--------------------------------|
| | <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> | ANOVA |
| Satisfaction summary | | | | | | | | | | | |
| General satisfaction | 6.34 | 0.58 | 6.08 | 0.79 | 5.98 | 0.70 | 6.00 | 0.77 | 6.03 | 0.72 | $F(3, 314) = 2.20$ |
| Program usefulness | 6.18 | 0.58 | 6.03 | 0.95 | 5.94 | 0.77 | 5.80 | 1.54 | 5.96 | 0.89 | <i>ns</i> |
| Satisfaction leaders | 6.65 | 0.48 | 6.37 | 0.68 | 6.15 | 0.77 | 6.26 | 0.75 | 6.24 | 0.74 | $F(3, 314) = 4.61^{**}$ |
| Technique usefulness | 6.06 | 0.66 | 6.01 | 0.73 | 5.85 | 0.91 | 5.32 | 2.01 | 5.84 | 1.03 | $F(3, 313) = 3.47^{*}$ |
| Technique usefulness | | | | | | | | | | | |
| Praise | 6.46 | 0.58 | 6.45 | 0.89 | 6.36 | 1.21 | 5.57 | 2.13 | 6.31 | 1.26 | $F(3, 312) = 4.03^{**}$ |
| Commands | 6.21 | 0.69 | 6.20 | 0.84 | 5.91 | 1.08 | 5.23 | 2.06 | 5.92 | 1.18 | $F(3, 308) = 5.16^{**}$ |
| Rewards | 5.93 | 1.59 | 6.08 | 1.13 | 5.89 | 1.40 | 5.47 | 2.15 | 5.88 | 1.47 | <i>ns</i> |
| Play | 6.07 | 0.77 | 6.16 | 0.96 | 5.58 | 1.28 | 5.33 | 2.02 | 5.87 | 1.31 | $F(3, 312) = 2.80^{*}$ |
| Time out | 6.21 | 0.74 | 5.71 | 1.41 | 5.91 | 1.26 | 5.27 | 2.08 | 5.84 | 1.36 | $F(3, 309) = 2.82^{*}$ |
| Descriptive commenting | 5.79 | 1.10 | 6.06 | 1.07 | 5.59 | 1.37 | 5.23 | 2.06 | 5.65 | 1.40 | <i>ns</i> |
| Consequences | 5.85 | 0.86 | 5.80 | 1.12 | 5.57 | 1.18 | 5.17 | 2.00 | 5.59 | 1.26 | <i>ns</i> |
| Ignoring | 5.82 | 1.25 | 5.35 | 1.65 | 5.46 | 1.34 | 5.27 | 2.07 | 5.46 | 1.47 | <i>ns</i> |
| Further interest | | | | | | | | | | | |
| Want to continue group | 85.7% <i>N</i> = 24 | | 85.4% <i>N</i> = 41 | | 75.4% <i>N</i> = 153 | | 93.3% <i>N</i> = 28 | | 79.6% <i>N</i> = 246 | | <i>ns</i> |
| Interest kindergarten program | 81.5% <i>N</i> = 22 | | 75.5% <i>N</i> = 37 | | 54.5% <i>N</i> = 114 | | 93.3% <i>N</i> = 28 | | 63.8% <i>N</i> = 201 | | $\chi^2(3) = 25.65^{***}$ |
| Interest anger management program | 78.6% <i>N</i> = 22 | | 43.8% <i>N</i> = 21 | | 43.1% <i>N</i> = 90 | | 90.0% <i>N</i> = 27 | | 50.8% <i>N</i> = 160 | | $\chi^2(3) = 33.05^{***}$ |
| Most helpful | | | | | | | | | | | |
| Group discussion | 2.71 | 0.60 | 2.73 | 0.53 | 2.62 | 0.68 | 2.93 | 0.25 | 2.67 | 0.63 | <i>ns</i> |
| Free babysitting | 2.86 | 0.59 | 2.67 | 0.81 | 2.58 | 0.86 | 2.87 | 0.57 | 2.65 | 0.81 | <i>ns</i> |
| Knowing FSW | 2.75 | 0.52 | 2.29 | 0.89 | 2.44 | 0.77 | 2.73 | 0.69 | 2.47 | 0.77 | $F(3, 312) = 3.49^{*}$ |
| Group support | 2.68 | 0.55 | 2.65 | 0.63 | 2.35 | 0.81 | 2.73 | 0.58 | 2.46 | 0.76 | $F(3, 314) = 4.68^{**}$ |
| Snacks | 2.82 | 0.48 | 2.47 | 0.71 | 2.15 | 0.91 | 2.60 | 0.77 | 2.30 | 0.86 | $F(3, 311) = 7.73^{***}$ |
| Making new friends | 2.61 | 0.69 | 2.49 | 0.77 | 2.14 | 0.91 | 2.60 | 0.62 | 2.28 | 0.86 | $F(3, 312) = 5.69^{***}$ |
| Use of videotapes | 2.71 | 0.53 | 2.08 | 1.00 | 2.19 | 0.91 | 2.77 | 0.63 | 2.28 | 0.90 | $F(3, 313) = 6.92^{***}$ |
| Role playing | 2.43 | 0.88 | 2.33 | 0.66 | 1.92 | 0.96 | 2.67 | 0.71 | 2.10 | 0.93 | $F(3, 311) = 9.20^{***}$ |
| Midweek calls | 2.48 | 0.71 | 1.61 | 1.06 | 1.56 | 1.02 | 2.71 | 0.66 | 1.77 | 1.05 | $F(3, 275) = 16.48^{***}$ |
| Post hoc tests (Tukey or χ^2) ^a | Hispanic vs. Asian | | African American vs. Asian | | Caucasian vs. Asian | | African American vs. Hispanic | | Caucasian vs. Hispanic | | African American vs. Caucasian |
| Satisfaction leaders | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | ** | | <i>ns</i> |
| Technique ease | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Technique usefulness | * | | * | | * | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Praise | * | | * | | ** | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Commands | ** | | ** | | * | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Play | <i>ns</i> | | * | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Time out | * | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Interest kindergarten program | <i>ns</i> | | <i>ns</i> | | *** | | <i>ns</i> | | ** | | ** |
| Interest anger management program | <i>ns</i> | | *** | | *** | | * | | *** | | <i>ns</i> |
| Knowing FWS | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> | | <i>ns</i> |
| Group support | <i>ns</i> | | <i>ns</i> | | * | | <i>ns</i> | | <i>ns</i> | | ** |
| Snacks | <i>ns</i> | | <i>ns</i> | | * | | <i>ns</i> | | *** | | * |
| Making new friends | <i>ns</i> | | <i>ns</i> | | * | | <i>ns</i> | | * | | * |
| Use of video | <i>ns</i> | | ** | | * | | * | | ** | | <i>ns</i> |
| Role playing | <i>ns</i> | | <i>ns</i> | | ** | | <i>ns</i> | | * | | * |
| Midweek calls | <i>ns</i> | | *** | | *** | | ** | | *** | | <i>ns</i> |

^aPost hoc comparisons shown for each pair of ethnic groups only when ANOVA by ethnicity was significant.

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

using the Tukey test for unequal *ns*. These results should be interpreted cautiously due to the number of comparisons performed. ANOVAs for two summary scores were significant: Satisfaction with Leaders, $F(3, 314) = 4.61, p = .004$, and Techniques Usefulness, $F(3, 314) = 3.47, p = .02$. Post hoc analyses indicated that Hispanic parents rated leaders more highly than Caucasian parents. While all groups reported that the parenting techniques taught in the program were useful, Asian parents reported that the group of techniques were less useful than the other three groups of parents.

Overall parents rated units on praise, commands, rewards, and play as most useful. In order to determine if there were ethnic differences parents' ratings of the usefulness of specific techniques, ethnicity effects for play, descriptive commenting (i.e., describing children's play without using questions or criticisms), praise, rewards, ignoring, commands, Time Out, and using consequences were examined. Significant effects were uncovered on four of the eight strategies, including, praise, commands, play, and Time Out (Table 5 displays the pair-wise comparisons for these variables).

Parents rated the group discussion and free babysitting as the most valuable aspects of the program. The next most valuable aspects were group support and getting to know the Head Start FSWs. Overall 80% of parents reported that they wished the parenting groups would continue. A majority of parents reported that they would be interested in similar classes for parenting kindergarten-age children (63.8%) and for anger management (50.8%). Asians were more likely than all other groups to request future classes on other topics. Parents in all ethnic groups rated the unit on Praise as the most helpful content unit.

DISCUSSION

By and large, these results speak to effectiveness of the Incredible Years parenting intervention as a prevention program for diverse groups of parents. At posttreatment, there were positive intervention effects on most parenting measures. Intervention mothers issued fewer commands, and were more positive, less critical, more consistent, more involved in school activities, and more competent in their interactions with and discipline of their children than control mothers. At 1-year follow-up most of the positive mother changes at home maintained, but

effects on parental involvement in school were no longer evident. Children whose parents received the intervention were observed to exhibit fewer behavior problems posttreatment, and were reported to have fewer behavior problems at the 1-year follow-up. Furthermore, parent and child intervention effects were consistent across ethnic groups. In fact, of the 51 ethnicity effects tested, only three reached statistical significance, a rate that would be expected by chance.

Significant site effects were observed on four measures, three of which were teacher variables and would thus be expected. For two of these teacher variables, intervention effects were also observed. The fourth site effect was for mother-reported harsh parenting. The reason for this effect is less clear. However, each parent group was held at a different Head Start site, so perhaps the parents in different groups discussed this material somewhat differently. For this variable there was also an intervention effect.

It is often difficult to detect intervention effects on child conduct problems in prevention studies, because most children do not exhibit baseline behavior in the clinical range. It is notable that intervention effects were found for observations of child negative behavior at posttreatment and parent report at follow-up. Furthermore, clinical significance analyses revealed that immediately following the intervention, there were 30% or greater reductions in risk behaviors (e.g., maternal criticisms and child negative behaviors) for the highest-risk intervention mothers and children compared to high-risk controls. Follow-up analyses indicated that postintervention reductions in children's negative behaviors were no longer evident, suggesting a fading of the initial intervention impact. In contrast, clinically significant increases of 30% in children's positive affect with their mothers were maintained at follow-up in the intervention group. This increase in positive affect during mother-child interactions may suggest that the intervention resulted in improved attachment and a more positive interpersonal relationship. Nonetheless, these data coupled with parents' request for further parenting support in kindergarten also suggest that continued intervention including both parents and teachers is needed for the highest-risk children (i.e., those with aggression in the clinical range) in order to produce sustained effects.

The finding that effects of this relatively brief parent intervention were evident across a 2-year period in children's early development is important. Research has demonstrated convincingly that parental criticism and negativity are related to the development

of conduct disorder symptoms and antisocial behavior, whereas positive affect and nurturing behaviors are related to increased attachment and emotional availability to children (e.g., Patterson *et al.*, 1992). Thus, the intervention had cross-cultural long-term effects on one of the primary risk factors for conduct disorders. The follow-up data on another risk factor for conduct disorder, low home-school involvement, are less promising. The impact of the intervention on parental involvement in school was not maintained in kindergarten. It is perhaps not surprising that these effects faded out during the transition to kindergarten. In fact, kindergarten teachers of both intervention and control children reported lower levels of parental involvement than was evident in Head Start. Kindergarten teachers may not have the training or resources to support and involve high-risk, low-income parents. In contrast, parent involvement is a major component of the regular Head Start Program and a major focus of our intervention. This finding suggests the need for kindergarten teachers to be trained in ways that enhance parent-teacher collaboration and parent involvement, especially among high-risk families.

Parents in all ethnic groups reported high levels of satisfaction with the parenting program. However, there were some small but significant differences between ethnic groups for a number of the satisfaction variables. Rank order of the summary satisfaction scores revealed that Caucasian mothers rated the program somewhat more critically than the other three groups. These data indicate that the program content and delivery is acceptable and useful to Asian, Hispanic, and African American families.

The apparent efficacy of the Incredible Years Parenting Program for parents from diverse ethnic backgrounds is consistent with the prevention work in the area of substance abuse with adolescents (Botvin, 1995; Botvin *et al.*, 1994, 1995; Dent *et al.*, 1996). We believe that the interactive and collaborative nature of the curriculum contributes to its generalizability across diverse groups of parents. The generic program employs videotaped vignettes of parents representing diverse groups, and the composition of the individual parenting groups is usually quite diverse. With guidance from the group leader, each parent is encouraged to state her own goals for her parenting and child and these goals are incorporated subsequently into the parenting principles that are taught. As with successful drug abuse prevention programs, this interactive format allows the standard manualized treatment to be tailored to each individual's situation and background. As a result, parents who enter the program

with different parenting styles and values can benefit as they are taught to incorporate the program principles into their own belief systems.

Baseline differences comparing intervention and control families suggest that parents (regardless of ethnic group) who signed up and participated in the parenting program were more likely to have problems such as depression, anger, more critical parenting, and more difficult children. This finding is consistent with other prevention research that has found differential enrollment between intervention and control groups (e.g., Reid *et al.*, 1999). Although it is problematic to the research design that the "highest-risk" are more likely to enroll in and stay in the intervention groups, the findings are encouraging in terms of providing services to high-risk families. Moreover, treatment efficacy was observed despite differential enrollment that worked against finding intervention effects.

Parents of all minority groups who enrolled in the program were as likely as Caucasians to continue to attend groups and complete the research assessments. The majority of parents in all ethnic groups wanted the groups to continue, and reported interest in attending similar groups on other topics. This suggests that offering a parenting program to all parents enrolled in Head Start may be an effective and non-stigmatizing way to address some of the mental health needs of at risk children.

One limitation of this study is that we were not able to look at the clinical significance analyses by ethnic group because of small numbers of children and mothers who fell into the clinical range at baseline. In future studies, we hope to expand on this area of analysis and document the effects of the intervention for minority families at clinical levels of symptomatology. Another limitation of this study is that information on families who choose not to enroll in the program was not available for all participants. Although minority families were less likely to enroll in the program than Caucasian families in Study 1, this information was not available for Study 2. The suggestion that initial recruitment to the program may be more difficult in minority families is important and consistent with other literature on recruitment (Harachi *et al.*, 1997).

Our project provides support for the idea that rather than focusing on developing different interventions for minority populations, perhaps efforts should be focused on the best ways to engage minority participants so that they are more likely to participate in the effective programs that are currently available. Our data indicate that once families are enrolled, they not only benefit from the program but also report high

levels of satisfaction and a desire to continue in the intervention. It should be noted, however, that because some evidence of differential enrollment for minority families was found, the positive results from the current research may not be generalizable to the segment of the population that was not recruited.

It should also be noted that because of the number of post hoc comparisons conducted in this study (for the baseline and parent satisfaction ethnicity contrasts), these effects should be interpreted with caution, as some may be due to chance. Post hoc comparisons were conducted using the Tukey test for unequal *ns* because the stringency of Bonferroni corrections would likely mask real differences between ethnic groups. Thus, differences reported among ethnicities on these contrasts should be viewed as exploratory.

We are encouraged by the possibility that the Incredible Years intervention is flexible enough to be used with multiple ethnic groups, as this demonstrates the program's usefulness in real world contexts. Programs such as Incredible Years Parent Program that are designed to be sensitive to individual differences in parenting practices and beliefs can reduce the need for programs that are designed specifically for parents of a single ethnic group. Moreover, they not only strengthen parenting competencies, but also communities of culturally diverse people who are mutually supportive.

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