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The Chicago Parent Program: Comparing 1-Year Outcomes for African American and Latino Parents of Young Children

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Abstract

Data were merged from two prevention randomized trials testing 1-year outcomes of a parenting skills program, the Chicago Parent Program (CPP), and comparing its effects for African-American ($n=291$) versus Latino ($n=213$) parents and their preschool children. Compared to controls, intervention parents had improved self-efficacy, used less corporal punishment and more consistent discipline, and demonstrated more positive parenting. Intervention children had greater reductions in behavior problems based on parent-report, teacher-report, and observation. Although improvements from CPP were evident for parents in both racial/ethnic groups, Latino parents reported greater improvements in their children's behavior and in parenting self-efficacy but exhibited greater decreases in praise. Findings support the efficacy of the CPP for African American and Latino parents and young children from low-income urban communities.

Keywords

parent training; child behavior problems; preschool; race/ethnicity

Child behavior problems can be pervasive and costly, with long-term implications for children's learning and peer relationships (Campbell, 2002; National Scientific Council on the Developing Child, 2008). It is estimated that the cumulative cost of child behavior problems through adolescence can exceed \$60,000 per child secondary to health care costs,

grade retention, and juvenile justice involvement (Foster & Jones, 2005). For these reasons, behavior problems in children are a high level mental and public health priority (Denham et al., 2000; Foster & Kalil, 2005; National Research Council and Institute of Medicine [IOM], 2009). Fortunately, researchers have found that child behavior problems are preventable and treatable. Behavioral parent training is now considered a gold standard for the treatment and prevention of behavioral problems in young children (Barlow, Smailagic, Ferriter, Bennett, & Jones, 2010; Gross, Garvey, Julion, & Fogg, 2007; Pearl, 2009). However, few parenting skills training programs have been designed for families of color or from low-income communities. The Chicago Parent Program (CPP) was created in 2002 to fill this gap (Gross, Garvey, et al., 2007). The purpose of this study was to assess the 1- year outcomes of the CPP on parenting skills and young children's behavior problems and compare its effects for African-American and Latino families from low-income communities.

A number of parenting programs have been shown to improve parenting and child behavior. These include the Parent Management Training-Oregon Model (PMTO; Hagen, Ogden, & Bjornebekk, 2011; Ogden & Hagen, 2008); The Incredible Years (Webster Stratton, Reid, & Hammond, 2004); Parent-Child Interaction Therapy (PCIT; Eyberg, Boggs, & Algina, 1995), and the Triple-P Positive Parenting Program (Sanders, Markie-Dadds, Tully, & Bor, 2000). All of these programs are guided by social learning theory and the coercive process model (Bandura, 1997; Patterson, 1982; Wyatt Kaminski, Valle, Filene, & Boyle, 2008). Central to this model is the assumption that parents and children inadvertently reinforce dysfunctional patterns of interaction through a cycle of coercive interchanges and inconsistent discipline. As children's misbehaviors escalate, parents become more punitive, coercive, and inconsistent, leading to more child misbehavior and diminished parenting self-efficacy. The core objective of the parent training in these programs is to alter these dysfunctional parent-child interactions by helping parents (a) become more aware of these "reinforcement traps," (b) learn and apply more consistent, positive, and less coercive discipline strategies, and (c) develop confidence in their parenting skills.

There are, however, two important limitations in the application of these parent skills training programs to high-risk families. First, most were originally developed for non-Latino White middle class families. Although some have been adapted for ethnic minority families (Forehand & Kotchick, 1996; Lundahl, Risser, & Lovejoy, 2006; Martinez, & Eddy, 2005), parents still may experience difficulty using culturally adapted programs that retain the basic assumptions of the dominant culture but simply add on "some ethnic features" (Falicov, 2009, p. 295). Second, few of these programs were specifically designed for parents living in low-income communities. This is an important issue because living in low-income neighborhoods presents obstacles for parents that can increase a child's risk for behavior problems (Gorman-Smith, 2003; Sameroff, Seifer, & McDonough, 2004; Youngstrom, Weist, & Albus, 2003).

Parenting styles and practices and the values that guide them vary widely across and within cultural and socioeconomic groups. For example, African American and Latino parents tend to value respect and obedience to a greater extent than non-Latino White parents (Lansford et al., 2011). Moreover, the strategies parents use to teach these values to their children (i.e., the use of autocratic versus authoritarian versus permissive parenting styles) also differ across racial and ethnic groups (Roche, Ensminger, & Cherlin, 2007; Weis & Tooli, 2010) as well as within ethnic groups (Harwood, Schoelmerich, Schulze & Gonzalez, 1999). Socioeconomic differences among families also are known to affect childrearing values and parenting styles (Arditti, Burton, & Neeves-Botelho, 2010; Gonzales et al., 2011). For example, parents raising young children in safe, resource-rich environments may have fewer rules and be more likely to flex those rules than parents raising children in low-income urban neighborhoods (Gross, 1996) where rules are intended to keep children safe. Thus, an

important question is whether one parenting program can effectively bridge these cultural and community-level differences known to affect parenting values and behavior and ultimately children's outcomes. To that end, the Chicago Parent Program (CPP) was developed in collaboration with an advisory board of parents to address the parenting concerns of both African American and Latino low-income families (See Gross, Garvey, et al., 2007 for more information on the development of the CPP).

In a previously published randomized trial, the CPP was shown to be effective for improving parent and child outcomes in low-income ethnic minority families (Gross et al., 2009). However, that study was affected by two key limitations: (a) low parent attendance rates that diminished the strength of the intervention and (b) a sample size that was too small to test differences in intervention effects between African American and Latino parents. These are important limitations that can affect interpretation of study results and translation to low-income multi-cultural, multi-racial communities in need of strong evidence-based parenting programs for their families. Therefore, the purpose of this study was to reexamine the efficacy of the CPP using a larger sample of African American and Latino parents and young children and to determine whether there are differences in program effects by parent race/ethnicity.

The Chicago Parent Program

The Chicago Parent Program (CPP)¹ is a 12-session community based prevention intervention for parents of 2 to 5-year-old children designed to promote parenting competence and prevent child behavior problems (Gross, Garvey, et al., 2007). During 2-hour weekly group sessions, video vignettes are shown to parents and used to stimulate discussion and problem solving related to child behavior and parenting skills. The first 4 weeks focus on building parents' positive relationships with their children, the second 4 weeks address child behavior management skills, and the last 4 weeks center on stress management, problem-solving skills, and skill maintenance. Trained group leaders facilitate discussions guided by a comprehensive group leader manual.

The CPP teaches parents evidence-based strategies for encouraging good behavior and reducing misbehavior in children. Most importantly, the program helps parents clarify their values and childrearing goals and then, through group discussion and problem solving, tailor the evidence-based strategies to achieve those goals in culturally acceptable ways. To that end, the CPP was designed to be relevant and effective for parents raising children in an economically diverse, multicultural society.

The CPP was studied in two trials conducted from 2002–2011 in childcare centers serving 2 to 4-year-old children in Chicago. The focus of Study 1 (2002–2006) was to examine the efficacy of the CPP for improving parenting and reducing behavior problems in young children up to 1-year post-intervention (Gross et al., 2009). Because the Spanish-language version of the CPP was not available until 2007, only English-speaking Latino families were eligible to participate in Study 1. The focus of Study 2 (2006–2011) was to test innovative strategies for increasing parent enrollment and attendance rates in CPP (Gross et al., 2011). In Study 2, monolingual Spanish-speaking parents were eligible to participate. This paper is the first to present CPP outcomes from data collected in Study 2 and to compare the effectiveness of the CPP by parent race/ethnicity. It is also the first to examine the long-term effects of the CPP on child behavior problems across three types of informants and contexts:

¹The CPP is currently under review for inclusion in the SAMHSA National Registry of Evidence-based Programs and Practices (NREPP).

parent-report, teacher-report of child behavior in a classroom setting, and observation during a structured parent-child play session.

There were two important findings from Study 1 (Gross et al., 2009). First, using an intent-to-treat model, parents in the intervention condition used less corporal punishment and issued fewer commands to their children than parents in the control group. These effects were apparent up to 1- year post-intervention. Additionally, children of parents in the intervention condition exhibited fewer behavior problems during a free play observation compared to those in the control group. Second, parent attendance had a significant effect on outcomes. Specifically, parents who attended at least 50% of the CPP sessions reported greater improvements in parenting self-efficacy, more consistency in their discipline, greater warmth in their parenting, and a greater decline in child behavior problems compared to the control group parents. However, parent attendance rates in Study 1 were low, averaging only 39% of group sessions. As a result, parents' exposure to the intervention was limited and many hypothesized behavioral improvements became apparent only when parent attendance was added in the analyses. Although secondary analyses using attendance add some support for the program's efficacy, the results are difficult to interpret as parents who attend more sessions may represent a different population than parents with poor attendance (i.e., more skilled or motivated parents may attend more sessions). There was also insufficient power to conduct a valid test of intervention effects by parent race/ethnicity given the small group sizes ($n = 148$ African American parents and $n = 85$ Latino parents). It is possible that differences in parenting and cultural values between these two populations may create different responses to the CPP that would affect program translation.

The current study and analyses address these limitations by using a larger sample of African American ($n = 291$) and Latino ($n = 213$) parents (mean attendance = 50% of CPP sessions). The purposes of this paper are to (a) reexamine the effects of the CPP for reducing behavior problems and increasing parenting skills up to 1-year post-intervention across two trials conducted over 9 years, and (b) determine whether intervention effects differ between African American and Latino parents and their preschool children.

The following hypotheses were addressed: Compared to parents in the control group, parents who received the CPP intervention would report greater (a) confidence in their parenting, (b) parenting warmth, (c) consistency in following through on discipline, and (d) reduced reliance on corporal punishment. It also was hypothesized that parents in the CPP intervention would use more praise and fewer commands with their children during observed play interactions, and their children would have fewer behavior problems than control group children following the intervention as assessed by parent-report, teacher-report, and observation. Finally, we sought to determine if the CPP was differentially sensitive by race/ethnicity by comparing intervention effects between African American and Latino families. Although we did not hypothesize any differences in the outcomes, our intent was to evaluate the validity of the CPP across both groups.

Method

Design and Participants

A pooled data set from two randomized trials conducted in Chicago childcare centers from 2002–2011 was used to examine the effects of the CPP. The statistical analysis of two or more separate samples pooled into one increases the sample size and the power to detect effects (Curran & Hussong, 2009). In both studies, child care centers were purposively sampled using the following inclusion criteria: the center (a) had over 90% of its families eligible to receive low-income child care subsidies, (b) was licensed by the state, (c) enrolled at least 60 children between the ages of 2 and 4, (d) had on-site space to run CPP

groups, and (e) had approval from the director to have the center randomized. Eight day care sites across the two studies were chosen to participate. Both studies were reviewed and approved by the University Institutional Review Board.

In Study 1 (2001–2006), the day care centers were matched on size, racial/ethnic composition, percent single parent households, and median income before randomizing them to wait-list control or intervention conditions (for detailed description of Study 1 methods see Gross et al., 2009). In Study 2 (2006–2011) we used a different design to maximize the size of the target population. Eight child care centers served as their own controls for the first year of the study. After 1 year, participants were recruited from new parents in the same centers. In both studies, participants in the control condition completed all measures but did not receive the intervention.

Parent and child data were collected across both studies on a total of 538 families. Because an aim of the current analysis was to understand potential differences in intervention effects between African American and Latino families, only parents who self reported as African American or Latino ($n = 504$) were included in the analysis. Thirty-four parents excluded from this analysis self reported as non-Latino White ($n = 19$), Asian/Pacific Islander ($n = 1$), multiracial ($n = 8$), or other race/ethnicity ($n = 5$). One participant did not report race/ethnicity, and these data were also excluded from this analysis. Of the remaining 504 parents, 291 (57.7%) were African American and 213 (42.3%) were Latino. With a sample size of 504, the power to detect a small effect ($d = .20$; Cohen, 1988) in this analysis was .72. A CONSORT flow diagram for the merged samples is presented in Figure 1.

For this combined sample, parents were mothers, fathers, or legal guardians of the target child. Mean parent age was 30.9 years ($SD = 7.53$ years). A majority of the children were male, and their mean age was 2.81 years ($SD = 0.73$ years). Demographic data for the samples in Study 1, Study 2, and the combined analysis are presented in Table 1.

Equivalence of baseline demographics by condition, study, and parent race/ethnicity was examined. Two significant differences were found. Children in Study 2 were slightly younger ($M = 2.73$; $SD = 0.72$) than children in Study 1 ($M = 2.90$; $SD = 0.74$; $F[2,502] = 1.44$; $p < .01$). Across both studies, Latino parents were more likely to be married (38.4%) than African American parents (18.2%; $\chi^2(1, n = 497) = 25.3$; $p < .01$).

Variables and Measures

Outcomes were measured using parent-report, teacher-report, and observations by raters blinded to condition. Outcomes of interest for this analysis are parenting self-efficacy, parenting discipline strategies and behavior, child behavior problems, and intervention attendance and satisfaction. Variables and measures are described below.

Parenting self-efficacy—Parenting self-efficacy was assessed using the Toddler Care Questionnaire (TCQ; Gross & Rocissano, 1988). The TCQ is a 38-item self-report scale measuring parenting confidence in managing situations and tasks specific to raising young children. Examples of TCQ scale items are: confidence in knowing what makes their child happy, keeping them safe, and managing aggression. TCQ scale scores range from 38 (*not at all confident*) to 190 (*very confident*). The TCQ has been significantly associated with parent knowledge of child development (Conrad, Gross, Fogg, & Ruchala, 1992) and parent-child outcomes (Gross, Conrad, Fogg, & Wothke, 1994; Morawska & Sanders, 2006). Cronbach's alpha reliability for the TCQ for this combined sample was .94.

Parent discipline strategies—Parenting discipline strategies were measured through parent self report using the 40-item Parent Questionnaire (PQ; Gross, Fogg, Garvey, &

Julion, 2004; McCabe, Clark, & Barnett, 1999). Three scales – Warmth, Follow Through on Discipline, and Corporal Punishment – measuring how parents discipline their children were included. Parents rate each item on a scale of 1 (*almost never*) to 5 (*very often*). Alpha reliabilities were calculated using the pooled data.

The 22-item Warmth Scale measures parent warmth (praise, encouragement, and enjoyment) towards their child (Cronbach's $\alpha = .82$). The Follow Through Scale includes 6 items capturing parent consistency with following through on behavioral expectations of their children (Cronbach's $\alpha = .78$). The Corporal Punishment Scale contains 4 items measuring parent use of corporal punishment in response to their children's misbehavior (Cronbach's $\alpha = .59$).

Parent behavior—Parent behavior was observed from 15-minute videotaped play sessions using the Dyadic Parent-Child Interactive Coding System-Revised (DPICS-R; Webster-Stratton, 1998). Two observed parent behaviors analyzed in this study were parent use of praise and use of commands. Parent use of praise is the sum of all the praise statements parents direct to their child during the observation (e.g., “great job putting the puzzle together,” “I love the picture you made”). Total commands used is the sum of all directives – positive and – negative given by the parent during the observed play time (e.g., “put that over there,” “don't use the red crayon”). For inter-rater reliability estimates, 30% of parent videotapes were coded by two independent raters. Inter-rater reliability using intraclass correlations (ICC) across the two study samples were .98 and .94 for praise and total commands, respectively.

Child behavior—Child behavior problems were measured by parent report, teacher report, and observation. Parent report of child behavior problems was measured using the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999); the ECBI is a 36-item scale designed for parents of children 2–16 years old that assesses the presence and intensity of problem behavior. Each item is measured on two scales, the Problem Scale and the Intensity Scale. The Intensity Scale assesses the frequency of 36 problem behaviors on a 7-point scale ranging from 1 (*the behavior never happens*) to 7 (*the behavior is always happening*). The Problem Scale assesses parent's perception of each of the behaviors as being problematic for him or her as a parent (*yes* or *no*). The ECBI is a valid measure of child behavior problems (Burns & Patterson, 2001; Eyberg & Ross, 1978; Funderburk, Eyberg, Rich, & Behar, 2003) with established convergent validity across racial and ethnic populations and economically and linguistically diverse samples (Gross, Fogg, et al., 2007). Cronbach's alpha reliabilities of the Intensity and Problem Scale scores in this study were .92 and .99, respectively.

Teacher report of child behavior problems was measured using The Caregiver-Teacher Report Form (C-TRF; Achenbach & Rescorla, 2001), a 99-item measure of frequencies of problem behaviors observed in a group or classroom setting for children aged 1 ½ to 5. Two behavior problem scales were analyzed in this study, the Externalizing Scale (34 items measuring disruptive behavior problems, aggression, and hyperactivity) and Internalizing Scale (32 items measuring anxiety, inhibition, depression, and social withdrawal). Teachers answered questions related to the identified child's behavior now or within the past 2 months on a 3-point scale ranging from 0 (*not true as far as you know*), 1 (*somewhat or sometimes true*), to 2 (*very true or often true*). The validity of the C-TRF has been supported by its ability to discriminate referred and nonreferred children (Achenbach & Rescorla, 2001). Cronbach's alpha reliabilities of the C-TRF scales in this study were .84 (Internalizing Scale) and .94 (Externalizing Scale).

Observed child behavior problems were assessed from the videotaped play sessions using the summed frequency of seven problem behaviors from the DPICS-R (Webster-Stratton,

1998): child noncompliance, destructive behavior, physical negative behavior, crying, whining, yelling, and “smart talk” (i.e., disrespectful or impudent behavior towards the parent). Interrater reliability for aversive child behavior using ICC was .90.

CPP attendance and satisfaction—Intervention attendance was calculated as the percentage of 12 CPP sessions attended by intervention group parents. A parent satisfaction measure was completed by parents at the last CPP session rating their degree of overall satisfaction with the program (i.e., *very dissatisfied*, *dissatisfied*, *satisfied*, or *very satisfied*) and whether they would recommend the program to other parents (i.e., *not recommend*, *recommend*, or *highly recommend*). Satisfaction data were summarized using item frequencies.

Procedures

Data collection—Parents in the control ($n = 237$) and intervention ($n = 267$) conditions completed four phases of assessment – baseline, post-intervention (3-months post-baseline), and two follow-ups at 6-months and 1-year post-intervention. At each phase, parents completed a set of questionnaires, and a 15-minute free play interaction with their child was video recorded. Parents in both conditions and studies received \$30 in gift cards for each completed set of questionnaires and videotaped play sessions. If parents remained in the study through the 1-year follow-up assessment they also received a copy of their videotaped parent-child interaction (see Gross et al., 2009 for a more complete description of data collection procedures). Teachers of the study children completed measures of child behavior problems at each of the data collection time points. Teachers received a \$10 gift card for each completed child behavior questionnaire.

Over the course of the two studies, 47 CPP parent groups were led by 28 group leaders. All group leaders were trained and supervised by study personnel. Thirteen group leaders were African American, nine were Latino, and six were non-Latino White. Seventeen of the group leader's had a graduate degree, four had a bachelor degree, four an associate degree, and three a high school diploma. In Study 1, 16 CPP groups (group enrollment $M = 10$ parents) and in Study 2, 31 CPP groups (group enrollment $M = 7$ parents) were conducted. In both studies, group leaders completed a weekly protocol checklist to assess whether the CPP was being implemented consistently. In Study 1, a random selection of CPP groups was observed by a member of the study team to assure intervention fidelity. In Study 2, intervention fidelity was monitored using procedures described by Breitenstein et al. (2010). Specifically, all Study 2 CPP groups were audio recorded, and a random selection of 25% of audio recorded group sessions were rated for adherence to the CPP protocol and the quality of group leader facilitation skills. Ongoing coaching and supervision was provided to group leaders in both studies as needed.

Data Analytic Plan

Data analysis took place in two phases using an intent-to-treat model. In the first phase, the data were analyzed using a multivariate repeated measures analysis of variance (RM-MANOVA) to determine if there were significant intervention effects on the outcome measures across all time points. If multivariate effects were found to be statistically significant, in the second phase of analysis parallel univariate analyses were conducted to interpret the meaning of the overall multivariate effect including race/ethnicity as a covariate. A Greenhouse-Geiser correction was used to correct for violations of sphericity. In addition, three orthogonal planned contrasts were used to examine changes over time. The planned contrasts used compared (a) baseline to post-intervention scores, (b) post-intervention to a pooled 6-month and 1-year follow-up score, and (c) 6-month follow-up to 1-year follow-up scores.

Results

Intervention Attendance

Mean parent attendance was 50% of CPP group sessions (range = 0 – 100%; $SD = 38\%$). Twenty-four percent of the parents enrolled in the intervention condition ($n = 63$) did not attend any parent group sessions. Of the 204 parents who attended at least one session, mean attendance was 67% of group sessions (range = 8 – 100%; $SD = 29\%$). Latino parents attended on average one more parent group session ($M = 6.54$ sessions; $SD = 4.47$) than African American parents ($M = 5.61$ sessions; $SD = 4.52$) but this difference was not statistically significant ($t(265) = 1.68$; $p = .09$).

Satisfaction data were high across African American and Latino parents, with 90.1% reporting they were *very satisfied* and 9.9% reporting they were *satisfied* with the program. Overall, 88.3% of parents reported they would *highly recommend* and 11.7% would *recommend* the program to another parent.

CPP Effects

For descriptive purposes, Table 2 presents mean scores and standard deviations of each variable by condition at each data collection time point. There was a significant overall RM-MANOVA ($Wilks' \lambda = 0.87$; $estimated F[36, 460] = 1.96$; $p < .01$) indicating overall treatment improvement in the intervention condition compared to the control condition. The RM-MANOVA was followed by a series of univariate analyses and planned contrasts, which are described below and displayed in Table 3.

Parenting self-efficacy, discipline, and parent behavior—As hypothesized, parents in the intervention condition used less corporal punishment, $p < .01$; reported following through more consistently on discipline, $p < .05$; and reported greater parenting self-efficacy, $p < .01$ than control group parents. There were, however, no intervention effects for parent warmth or observed use of commands.

Planned contrasts revealed that the greatest improvements in the consistency of parent discipline, $p < .05$, and parenting self-efficacy, $p < .01$, were from baseline to post-intervention. Although there were no overall intervention effects for parents' observed use of praise, significant effects were found from baseline to post-intervention, $p < .05$, indicating a short-term improvement in parents use of praise for the intervention group that was not maintained.

Child behavior problems—As hypothesized, parents in the intervention group reported a reduction in their children's behavior problems based on the ECBI Intensity Scale, $p < .05$, but not on the ECBI Problem Scale. Their children's teachers also reported reductions in the children's externalizing, $p < .01$, and internalizing behavior problems, $p < .05$. For parent reported child behavior problems, the largest improvements were found from baseline to post-intervention, $p < .05$. For teacher-reports of child behavior problems in the classroom, the greatest improvements were found from the 6-month to the 1-year follow-up on the externalizing, $p < .01$, and the internalizing, $p < .01$, scales. Short-term improvements were found for observed child behavior problems favoring the intervention group children, $p < .01$. These effects, however, were not maintained beyond post-intervention, as observed behavior problems in all study children improved over time.

CPP Effects by Race/Ethnicity

Although significantly more improvements were found in the intervention group than in the control group, the degree of improvement in the intervention group differed by race/

ethnicity on three variables. These include parent-reported child behavioral problems on the ECBI, parenting self-efficacy, and observed use of praise. Table 4 presents the mean scores of each variable by condition and by parent race/ethnicity at each data collection time point.

Latino parents reported greater overall improvements in their children's behavior problems relative to African American parents, $F(3, 1500) = 5.68, p < .01$, with a significant difference found at the 6-month to 1-year follow up, $F(1, 500) = 14.96, p < .01$. Latino parents also reported greater improvements in parenting self-efficacy from baseline to post-intervention than African American parents, $F(1, 500) = 4.29, p < .05$.

Although parents in both conditions were observed to reduce their use of praise over time, significant differences by race/ethnicity were observed from the 6-month to 1-year follow up, $F(1, 495) = 3.98, p < .05$. Specifically, Latino parents' use of praise declined more from the 6-month to the 1-year follow up relative to African American parents in the intervention condition.

Discussion

In this analysis combining data from two randomized trials of the Chicago Parent Program (CPP) we examined the effects of the program for increasing parenting skills and reducing child behavior problems in a low-income community sample of African American and Latino parents of preschool children. In addition, we compared intervention effects by race/ethnicity to determine whether there were significant differences in outcomes between African American and Latino participants. This is an important question given that African American and Latino parents tend to have different parenting styles and childrearing values and may therefore have different responses to the same parenting program (Chao & Kanatsu, 2008; Hughes et al., 2006).

The results of this study indicate that the CPP led to significant improvements in parenting self-efficacy, parent use of effective discipline strategies, and parent and child behavior for both African American and Latino parents and their 2 to 4-year-old children up to 1-year post-intervention. In addition, there were no differences in parent attendance rates by race/ethnicity and all parents reported high program satisfaction. These results have implications for program translation in low-income communities, as discussed below.

Significant overall intervention effects were found for parenting self-efficacy, more consistent use of discipline, and parent reports of child behavior problems, with the greatest improvements in all three variables reported immediately following the intervention. This suggests that parents who participated in the CPP used more effective discipline techniques, saw improvements in their children's behavior problems, and felt more confident about their parenting skills than parents in the control group. Although both groups of intervention parents showed improvements on these variables, Latino parents reported significantly more improvement in their parenting self-efficacy and their children's behavior than their African American counterparts.

Although the study design does not allow for causal tests of the relationships among these variables, social learning theory would suggest that as parents consistently applied the new skills they were learning, they could see improvements in their children's behavior which helped build their confidence in continuing to use the new skills (Bandura, 1997; Kazdin, 1997). This chain of outcomes is consistent with how parenting skills training is intended to work (Wyatt Kaminski et al., 2008). That is, as parents learn to engage in fewer coercive responses to their children's misbehavior (i.e., yelling, hitting, spanking), and focus more of their attention on positive behavior, children get reinforced for using more socially competent ways to gain their parents' attention.

Intervention parents also reduced their use of corporal punishment compared to control group parents. This finding may indicate that as children's behavior improved, parents felt less need to use corporal punishment. It is also possible that when CPP parents did discipline their children, they were less likely to use corporal punishment. This is a potentially important finding given that the CPP does not specifically advocate against corporal punishment. During program development, advisory board parents were specific in their feedback that a parenting program that admonished parents against the use of spanking would be seen as irrelevant and culturally insensitive and they would be unlikely to attend such a program (Gross et al., 2007). Thus, the CPP curriculum emphasizes a range of alternative discipline strategies and a set of principles guiding the use of discipline (e.g., consistency, predictability, time-limited, remaining in control of one's emotions). That CPP parents relied less on corporal punishment relative to controls suggests that the program is effective in teaching parents alternative options for disciplining their children that are viewed as relevant and useful. There was no evidence that changes in parents' use of corporal punishment varied by parent race/ethnicity.

Importantly, there were significant overall effects for improvements in parent use of corporal punishment, perceptions of child behavior problems, and self-efficacy, indicating that the positive changes obtained at post-intervention were maintained up to 1 year later. This finding suggests that these positive changes in the parent-child relationship are mutually reinforcing and sustainable. Teachers observed improvements in intervention children's externalizing (i.e., aggression, hyperactive behavior, inattention) and internalizing (i.e., anxiety, depression) behavior. However, these effects were not apparent until the 1-year follow-up. Inspection of means for teacher ratings of children's behavior problems shows that intervention children's behavior improved from the 6-month to 1-year follow-up while control group children's behavior declined over this period. It is important to note that over the course of the study year different teachers provided child behavior ratings as children moved to different childcare classrooms or from childcare to kindergarten. Thus, although inter-rater reliabilities for the C-TRF tend to be high (r 's = .88 – .94; Achenbach & Rescorla, 2000; Gross, Fogg, et al., 2007), some caution is warranted in generalizing this finding. Nonetheless, the long-term impact of improved parenting and child behavior on children's behavior in school may have important implications for policies focused on school-readiness and academic success (Booth & Crouter, 2008; Graziano, Reavis, Keane, & Calkins, 2007), pointing to an important area for future research.

There were no overall effects for observed parent use of either praise or commands. Although planned contrasts indicated that at post-intervention CPP parents used more praise and control parents used less praise than at baseline, these improvements were not maintained. In fact, by the 1-year follow-up, parents in both conditions were praising their children less often than had been observed at baseline. Further analysis showed that the lack of maintenance in intervention parents' use of praise was greatest for Latino parents, a result that is difficult to interpret and may be a chance finding. Nonetheless, the findings indicate that even when children's behavior improved, parents in this study tended not to use praise to reinforce those good behaviors. Parents' observed use of commands during free play also dropped across all parents from baseline to the 1-year follow-up. It is possible that as children mature and take on more active roles in parent-child play, parents say less in general.

Children's maturation also may account for the similar pattern found for observed behavior problems. Although at post-intervention CPP children exhibited fewer behavior problems while control children exhibited more behavior problems, by the 1-year follow-up, reductions in behavior problems to rates below those found at baseline were observed in both groups of children. Results of parent training in treatment populations have shown

significant reductions in child behavior problems (Scott et al., 2010; Webster-Stratton, Reid, & Hammond, 2001); however, few prevention studies have shown consistent effects on these problems following parenting skills training. That significant improvements in child behavior problems were found following the CPP intervention across both racial/ethnic groups based on parent-report, teacher-report, and observation is an important finding, demonstrating the strength of this parent program.

There is an increasing awareness among researchers, economists, clinicians, and policy-makers that interventions directed at the first 5 years of life are cost-effective investments (Heckman, 2006). Parenting skills training during these years is a particularly wise investment given that parents play such an important role in the development of their children. Indeed, research shows that parenting quality is a more powerful predictor of child outcome than most any other variable, including low socioeconomic status (Lugo-Gil & Tamis-LeMonda, 2008).

The results of this study suggest that the Chicago Parent Program is an effective preventive parenting skills program for both African American and Latino parents raising young children in low-income neighborhoods. Most effects were retained up to 1-year after the intervention had ended. Moreover, the program was viewed as one that both African American and Latino parents liked and would recommend to other parents. Thus, the Chicago Parent Program has the potential to become an important addition to the toolbox of evidence-based interventions for use by agencies serving low-income families and their preschool children.

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Figure 1.

CONSORT flow diagram of merged data set from Study 1 and Study 2

Note. ^a In study 1, 3 centers were randomized to intervention condition only; 4 centers were randomized to a wait-list control condition and became intervention sites 2 years later leading to a total of 7 intervention sites in study 1. ^b In Study 2, 8 centers served as their own control groups.

Table 1

Sample Description by Full Sample, Study 1 and Study 2, and African American (AA) and Latino [frequency (%)]

Variable	Full sample <i>N</i> = 504	Study 1 <i>n</i> = 233	Study 2 <i>n</i> = 271	African American <i>n</i> = 291	Latino <i>n</i> = 213
Child age					
2 years old	193 (38.3)	76 (32.6) ^a	117 (43.2)	115 (39.5)	78 (36.6)
3 years old	216 (42.9)	105 (45.1)	111 (41.0)	125 (43.0)	91 (42.7)
4 years old	95 (18.8)	52 (22.3)	43 (15.9)	51 (17.5)	44 (20.7)
Child gender					
Female	230 (45.6)	101 (43.3)	129 (47.6)	131 (45.0)	99 (46.5)
Male	274 (54.4)	132 (56.7)	142 (52.4)	160 (55.0)	114 (53.5)
Relationship to child ^b					
Mother	452 (90)	211 (91.3)	241 (88.9)	257 (88.6)	195 (92.0)
Father	33 (6.6)	14 (6.1)	19 (7.0)	17 (5.9)	16 (7.5)
Other	17 (3.4)	6 (2.6)	11 (4.1)	16 (5.5)	1 (0.5)
Parent Race/Ethnicity					
African American	291 (57.7)	148 (63.5)	143 (52.8)	--	--
Latino	213 (42.3)	85 (36.5)	128 (47.2)	--	--
Parent Education ^c					
Less than high school	98 (19.5)	40 (17.2)	58 (21.5)	33 (11.4)	65 (30.5)
High school/GED	112 (22.3)	61 (26.3)	51 (18.9)	67 (23.2)	45 (21.1)
Some college/AD	240 (47.8)	109 (47.0)	131 (48.5)	165 (57.1)	75 (35.2)
College/Graduate school	52 (10.4)	22 (9.5)	30 (11.1)	24 (8.3)	28 (13.1)
Employment Status ^d					
Full time	278 (55.6)	142 (61.2)	136 (50.7)	160 (55.4)	118 (55.9)
Part time	84 (16.8)	35 (15.1)	49 (18.3)	48 (16.6)	36 (17.1)
School	87 (17.4)	33 (14.2)	54 (20.1)	49 (17.0)	38 (18.0)
Not Working	42 (8.4)	18 (7.8)	24 (9.0)	27 (9.3)	15 (7.1)
Other	9 (1.8)	4 (1.7)	5 (1.9)	5 (1.7)	4 (1.9)

Variable	Full sample N = 504	Study 1 n = 233	Study 2 n = 271	African American n = 291	Latino n = 213
Annual income ^e					
< \$20,000/yr	292 (59.7)	138 (59.5)	154 (60)	169 (60.8)	123 (58.3)
\$20,000-\$40,000/yr	149 (30.5)	74 (31.9)	75 (29.2)	86 (30.9)	63 (29.9)
> \$40,000/yr	48 (9.8)	20 (8.6)	28 (10.9)	23 (8.3)	25 (11.8)
Marital Status ^f					
Married	133 (26.4)	60 (26.4)	73 (27.0)	52 (18.2) ^g	81 (38.4)
Not married	364 (72.2)	167 (73.6)	197 (73)	234 (81.8)	130 (61.6)

Note.

^aChildren in study 2 were younger than in study 1, $F(2,502) = 1.44; p < 0.01$.

^bMissing = 2.

^cMissing = 2.

^dMissing = 4.

^eMissing = 15.

^fMissing = 7.

^gLatino parents were more likely to be married than African American parents, $\chi^2(1, n = 497) = 25.30, p < .001$.

Table 2

Mean and Standard Deviation of Outcome Variables for Intervention (n = 267) and Control (n = 237) Groups

Variable	Assessment Time Point			
	Baseline M (SD)	Post-intervention M (SD)	6-month post intervention M (SD)	1-year post intervention M (SD)
Parent warmth (PQ)				
Intervention	91.22 (9.09)	91.54 (10.35)	92.10 (9.2)	92.48 (10.05)
Control	93.37 (8.65)	94.21 (8.70)	93.39 (9.01)	94.43 (8.91)
Parent corporal punishment (PQ)				
Intervention	6.93 (2.40)	6.63 (2.45)	6.40 (2.29)	6.28 (2.23)
Control	6.77 (2.38)	6.84 (2.38)	6.86 (2.55)	6.87 (2.48)
Parent follow through (PQ)				
Intervention	20.34 (4.62)	21.26 (4.54)	21.20 (4.75)	21.60 (4.68)
Control	21.37 (4.17)	21.53 (4.53)	21.88 (4.29)	21.51 (4.70)
Parenting self-efficacy (TCQ)				
Intervention	160.05 (21.03)	164.05 (22.62)	167.32 (19.29)	169.96 (17.59)
Control	164.80 (21.04)	164.22 (22.81)	167.63 (21.08)	169.40 (18.77)
Child behavior problems (ECBI)				
Intervention	6.39 (6.59)	5.45 (6.90)	4.65 (6.13)	4.77 (6.58)
Control	6.06 (6.65)	4.73 (6.09)	4.64 (6.65)	4.63 (6.23)
Child behavior intensity (ECBI)				
Intervention	94.97 (28.09)	90.82 (26.16)	88.67 (27.43)	86.53 (28.41)
Control	91.20 (25.42)	91.97 (26.35)	90.45 (28.78)	87.66 (27.19)
Child externalizing behaviors (C-TRF)				
Intervention	8.82 (10.02)	9.95 (11.38)	9.94 (10.42)	8.17 (10.43)
Control	10.26 (10.98)	9.77 (10.63)	8.74 (10.28)	9.94 (11.46)
Child internalizing behaviors (C-TRF)				
Intervention	5.25 (5.73)	5.09 (5.74)	4.61 (5.20)	4.40 (5.87)
Control	6.48 (6.29)	5.58 (6.04)	4.38 (4.98)	5.52 (6.05)
Parent praise (DPICS-R)				
Intervention	6.94 (7.54)	7.69 (8.52)	6.27 (7.57)	5.28 (6.66)
Control	7.63 (8.48)	6.35 (8.33)	5.66 (6.29)	4.56 (5.89)

Variable	Assessment Time Point			
	Baseline <i>M (SD)</i>	Post-intervention <i>M (SD)</i>	6-month post intervention <i>M (SD)</i>	1-year post intervention <i>M (SD)</i>
Parent total commands (DPICS-R)				
Intervention	69.16 (36.61)	67.69 (37.65)	56.91 (34.79)	46.21 (29.43)
Control	68.89 (37.21)	68.23 (36.81)	60.44 (34.53)	46.59 (28.12)
Child aversive behavior (DPICS-R)				
Intervention	13.88 (20.33)	11.37 (12.49)	9.13 (9.68)	8.14 (10.25)
Control	11.06 (11.99)	12.44 (10.99)	9.04 (8.98)	7.95 (10.16)

Note. PQ = Parent Questionnaire; TCQ = Toddler Care Questionnaire; ECBI = Eyberg Child Behavior Inventory; C-TRF = Caregiver-Teacher Rating Form; DPICS-R = Dyadic Parent-Child Interactive Coding System-Revised.

Table 3

Treatment Effects over Time (2-way interaction)

Variable	Overall effect	Time by Condition		
		Baseline to post intervention	Post intervention to 6-month and one-year follow up	6-month to one- year follow up
	<i>F</i> <i>df</i> = (3, 1500)	<i>F</i> <i>df</i> = (1, 500)	<i>F</i> <i>df</i> = (1, 500)	<i>F</i> <i>df</i> = (1, 500)
Parent warmth (PQ)	0.60	0.48	1.15	0.50
Parent corporal punishment (PQ)	4.24**	3.52	2.24	0.49
Parent follow through (PQ)	2.74*	3.78*	0.00	3.07
Parenting self-efficacy (TCQ)	3.88**	6.79**	0.02	0.43
Child behavior problems (ECBI)	0.65	0.87	1.86	0.01
Child behavior intensity (ECBI)	2.63*	4.44*	0.18	0.07
Child externalizing behaviors (C-TRF)	3.94**	3.32	0.27	9.28**
Child internalizing behaviors (C-TRF)	2.62*	1.73	0.00	6.23**
	<i>F</i> <i>df</i> = (3, 1495)	<i>F</i> <i>df</i> = (1, 495)	<i>F</i> <i>df</i> = (1, 495)	<i>F</i> <i>df</i> = (1, 495)
Parent praise (DPICS-R)	2.30	6.56*	1.27	0.01
Parent total commands (DPICS-R)	0.33	0.00	0.46	0.34
Child aversive behavior (DPICS-R)	2.48	6.78**	1.23	0.00

Note. PQ = Parent Questionnaire; TCQ = Toddler Care Questionnaire; ECBI = Eyberg Child Behavior Inventory; C-TRF = Caregiver-Teacher Rating Form; DPICS-R = Dyadic Parent-Child Interactive Coding System-Revised.

* $p < .05$.

** $p < .01$.

Table 4
Mean Scores on Outcome Variables for African American (n =291) and Latino (n = 213) Parents and Children

Variable	Assessment Time Point					
	Baseline M		Post-intervention M		6-month post intervention M	
	Intervention	Control	Intervention	Control	Intervention	Control
Parent warmth (PQ)						
African American	92.46	94.29	91.81	94.73	93.50	93.71
Latino	89.66	91.99	91.20	93.42	90.34	90.92
Parent corporal punishment (PQ)						
African American	7.31	7.23	7.05	7.34	6.60	6.54
Latino	6.45	6.08	6.10	6.09	6.14	5.97
Parent follow through (PQ)						
African American	20.50	21.11	21.08	21.10	21.27	21.41
Latino	20.14	21.76	21.49	22.17	21.10	21.84
Parenting self-efficacy (TCQ)						
African American	167.27	168.93	167.37	168.01	170.09	172.31
Latino	150.94	158.63	159.86	158.56	163.82	166.98
Child behavior problems (ECBI)						
African American	5.45	5.06	5.22	4.75	4.33	5.17
Latino	7.57	7.55	5.75	4.71	5.06	4.28
Child behavior intensity (ECBI)						
African American	92.50	89.31	90.39	92.39	86.71	89.35
Latino	98.09	94.04	91.36	91.35	91.16	82.96
Child externalizing behaviors (C-TRF)						
African American	8.76	10.82	9.78	10.55	9.76	8.28
Latino	8.90	9.43	10.16	8.60	10.16	8.04
Child internalizing behaviors (C-TRF)						
African American	5.26	6.45	4.84	5.64	4.53	4.36
Latino	5.24	6.52	5.40	5.49	4.70	4.45
Parent praise (DPICS-R)						
African American	6.46	7.73	7.07	6.35	5.36	5.57
Latino						4.22

Variable	Assessment Time Point							
	Baseline <i>M</i>		Post-intervention <i>M</i>		6-month post intervention <i>M</i>		1-year post intervention <i>M</i>	
	Intervention	Control	Intervention	Control	Intervention	Control	Intervention	Control
Latino	7.54	7.49	8.47	6.34	7.40	6.09	4.91	5.08
Parent total commands (DPICS-R)								
African American	72.54	69.93	69.53	71.73	56.37	62.16	45.88	44.39
Latino	64.95	67.29	65.40	62.82	57.59	57.79	46.61	49.98
Child aversive behavior (DPICS-R)								
African American	14.18	10.49	12.80	13.03	9.30	9.23	8.61	8.11
Latino	13.52	11.95	9.58	11.53	8.92	8.76	7.55	7.70

Note. PQ = Parent Questionnaire; TCQ = Toddler Care Questionnaire; ECBI = Eyberg Child Behavior Inventory; C-TRF = Caregiver-Teacher Rating Form; DPICS-R = Dyadic Parent-Child Interactive Coding System-Revised.