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## Parent Training for Young Children With Developmental Disabilities: Randomized Controlled Trial

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### Abstract

A randomized controlled trial was used to evaluate a parent training intervention for caregivers with preschool-age children with developmental disabilities. The 21 families in the experimental group received usual care plus the 12-week Incredible Years Parent Training Program with developmental delay modifications. Families in the control group ( $n = 23$ ) received usual care, including early childhood education and related services. Results suggest that this parent training intervention was superior to usual care for young children with developmental delays or disabilities in reducing negative parent–child interactions and child behavior problems. Participants in the experimental group indicated high satisfaction with treatment. Additional research is necessary to document maintenance and generalization of treatment outcomes.

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Children and adults with intellectual and other developmental disabilities are more likely to be diagnosed with a severe behavior disorder or mental health diagnosis than are their typically developing counterparts (Emerson, 2003). This dual diagnosis of cognitive and behavioral impairments places additional strain on parents and teachers (Baker et al., 2003; McIntyre, Blacher, & Baker, 2006) and may be overlooked or underreported by health care providers (Levitan & Reiss, 1983). Furthermore, children with developmental disabilities and behavior or mental health disorders are at greater risk for difficulties in school; are more likely to be placed in out-of-home residential care; and, as adults, are more likely to have problems in the workplace (Borthwick-Duffy & Eyman, 1990; McIntyre, Blacher, & Baker, 2002; Taanila, Ebeling, Heikura, & Järvelin, 2003).

Although estimates of mental health problems in children and adolescents with developmental disabilities vary depending on sampling procedures, diagnostic criteria, and age of individual, estimates are generally thought to be between 25% to 40% (Emerson, 2003). Emerson, for example, conducted a prevalence study of psychiatric disorders in 10,438 children in the United Kingdom. Children with intellectual disability were seven times more likely to have a psychiatric disorder than children with no intellectual disabilities (Emerson, 2003). Because of the negative impact that behavior problems place on caregivers, some have suggested the need for early intervention for children and families most at risk (McIntyre et al., 2006). Few researchers, however, have employed rigorous methods in treatment evaluations for families and children with developmental disabilities. One treatment option, often used with children without developmental disabilities, is parent training.

Given the established link between parenting practices and children's behavior (e.g., Hinshaw, 2002; Patterson, 1976; Sameroff & Fiese, 2000), parent training has been employed to alter

negative parent–child interactions and reduce child behavior problems (Webster-Stratton, 2001). Floyd, Harter, and Costigan (2004) found that negative parent–child interactions during family problem-solving was associated with child behavior problems in children with intellectual disability, chronic illness, and children who were typically developing. Positive parenting practices, including contingent praise, sensitivity, scaffolding, and consistent limit setting, in contrast to negative coercive parenting behaviors, have often been associated with the development of children’s social competence and self-regulation (Bradley & Corwyn, 2007; Lengua, Honorado, & Bush, 2007; Tobin, Sansosti, & McIntyre, 2007).

The relationship between parenting and problematic child behavior is often explained using a transactional model (Dodge, 2000; Sameroff & Fiese, 2000). A transactional model suggests that the dynamic interactions that occur between a child and parent predict developmental outcomes (Patterson, 1976; Sameroff & Chandler, 1975; Sameroff & Fiese, 2000). Developmental outcomes may be favorable, suggesting the development of positive adjustment, social competence, and self-regulation, or may be negative and include externalizing or internalizing behavior problems.

Parenting training has a long history of use with typically developing children who had behavior disorders. Parent training is based on social learning theory, principles of operant theory and behavior modification, and tenets of developmental psychopathology. Evidence suggests that building positive parenting skills and targeting parent–child interactions will have collateral effects on children’s behavior problems (Forehand & Mc-Mahon, 1981; Patterson, 1982). Parent training with typically developing children with conduct problems has been useful in reducing children’s observed aggressive and antisocial behaviors and increasing parental competence and positive parent–child relationships (Eyberg, 1992; Webster-Stratton, 2000; Webster-Stratton & Hammond, 1997).

Webster-Stratton and her colleagues have developed the Incredible Years Parent Training (IYPT) series, which has been demonstrated to be more effective than control treatments in six randomized trials and in five independent replication studies in reducing children’s maladaptive behavior and increasing parents’ adaptive parenting skills (Webster-Stratton, 1984, 1994, 2000). The IYPT program is one of two well-established psychosocial treatments for childhood conduct problems, as determined by the Division 12 (Clinical Psychology) task force of the American Psychological Association (Brestan & Eyberg, 1998). Parent training programs based on Patterson and Gullion’s (1968) manual *Living With Children* is the other treatment that is deemed well-established. The determination of “well-established” was based on effect sizes, sampling, methods employed, treatment integrity, and a host of other research evaluation criteria (Lonigan, Elbert, & Johnson, 1998). Although the IYPT program has a long history of utility and efficacy with typically developing children, it has not been evaluated in a randomized trial with children who have developmental disabilities.

Although the IYPT has not been used with children who have developmental disabilities, other parent training programs have been employed with this population. Unlike parent training for families who have children with behavior problems, programs for children with developmental disabilities often target increasing children’s adaptive behavior, self-help skills, language, or academic skills (Baker & Brightman, 2004; Breiner, 1989). Early childhood programs that utilize positive behavioral supports and build parent–professional partnerships are also promising models for involving parents in prevention and intervention plans to reduce risk for childhood behavior problems (e.g., Dunlap & Fox, 2007; Fox, Dunlap, & Cushing, 2002). There have been a handful of more traditional parent training programs for children with developmental disabilities aimed at decreasing problem behavior; however, these programs often focus on children with elevated behavior problems or established behavior disorders (e.g., Plant & Sanders, 2007), target older children (e.g., Hudson et al., 2003), or use individualized

approaches based on functional analyses of behavior (e.g., Lerman, Swiezy, Perkins-Parks, & Roane, 2000). Although parent training has a long history in the field of intellectual and developmental disabilities (e.g., Baker, 1989), few programs focus on prevention or early intervention of behavior problems using a group-based training approach for families with preschoolers. The IYPT emphasizes behavior management, limit setting, and reducing challenging behavior, as do other parent training programs (e.g., Plant & Sanders, 2007); however, this program also emphasizes developing positive relationships with children, especially through developmentally appropriate play and positive interactions (see Webster-Stratton, 2001).

I used a randomized controlled trial of a 12-week group-based parent training program to reduce child behavior problems and negative parent-child interactions, often associated with the onset and maintenance of severe behavior disorders in children. Positive parenting behavior, in the form of child-directed praise, was also investigated. I focused on preschool-age children in an effort to provide early intervention (secondary prevention) for those children at-risk for heightened behavior problems given their developmental status.

My primary goal in this study was to investigate whether the experimental treatment, IYPT (with developmental disabilities adaptations) was more efficacious than a usual care control treatment in reducing negative parenting behaviors during parent-child interactions and reducing child behavior problems. A secondary goal involved determining whether parental praise increased in the experimental treatment group relative to the control group. Tertiary goals were to investigate whether subjective reports of child positive impact increased and child negative impact decreased in the experimental treatment relative to the control group. My final goal was to assess the degree of treatment satisfaction participants reported with the experimental treatment.

I hypothesized that participants in the experimental group would (a) display reduced negative parenting behaviors during parent-child interactions, (b) report fewer child behavior problems, (c) display increased use of child-directed praise, (d) report reduced subjective feelings of child negative impact, and (d) report increased subjective feelings of child positive impact posttreatment relative to participants in the control group. Finally, I hypothesized that participants in the experimental treatment group would evaluate all aspects of the treatment as helpful.

## Method

### Participants

Parents and their preschool-age children (2 to 5 years) with developmental delays were recruited from early intervention and preschool programs in two counties in New York State from March 2005 to September 2006. Parents responded to recruitment flyers that were made available to them through their child's school program or through their early intervention providers. After obtaining verbal consent, a research assistant screened them over the telephone to assess whether their child met the following inclusionary criteria: (a) age between 2 to 5 years, (b) Adaptive Behavior Composite standard score between 45 to 85 on the Vineland Adaptive Behavior Scales—VABS (Sparrow, Balla, & Cicchetti, 1984), (c) ambulatory, and (d) living with the primary caregiver for at least 6 months. Children were excluded if they were deaf or blind.

### Consent Procedure

The university's Institutional Review Board approved the research procedures. Prior to study participation, all families provided verbal consent to be screened for eligibility. Upon eligibility

determination, I sent an informed consent form to the families and described the study in detail, including randomization to an experimental or control condition. Families who wished to participate reviewed the materials and had an opportunity to ask questions over the phone or during the face-to-face intake interview. I used a simple randomization strategy; every second family who met eligibility criteria was assigned to the experimental condition. The research assistant who screened participants was not responsible for assigning families to study conditions. Families assigned to the control condition were offered the experimental treatment upon study completion.

### Eligibility Screening

A research assistant screened the parent or guardian over the telephone to obtain the following information: (a) target child's date of birth; (b) target child's ambulation status; (c) target child's primary diagnosis, if applicable, and presence of comorbid conditions, including a sensory disorder (i.e., deafness or blindness); (d) number of adults and children living with the target child; and (e) target child's adaptive behavior functioning. The VABS was administered to the primary caregiver to determine whether the target child met the developmental functioning criterion for inclusion. The VABS is a structured interview pertaining to individuals with or without disabilities to assess adaptive behavior in four areas: (a) Communication, (b) Daily Living Skills, (c) Socialization, and (d) Motor Skills. These subscales were combined to make up the Adaptive Behavior Composite standard score (normative sample  $M = 100$ ,  $SD = 15$ ).

A total of 57 families were screened over the phone and 49 met inclusionary criteria. Families were excluded for a variety of reasons, including not meeting the following inclusionary criteria: adaptive behavior ( $n = 3$ ), child age ( $n = 3$ ), ambulatory ( $n = 1$ ), and living with the primary caregiver for at least 6 months ( $n = 1$ ).

### Assessment Procedures

**Pre- and posttreatment assessments**—All pre- and posttreatment assessments were completed in the home of the participating family and occurred 14 to 16 weeks apart. Home-based assessments were identical for families in the experimental and control conditions. Families received a \$25 honorarium for each assessment. With the exception of the informed consent form and family information demographics sheet (only done during the pretreatment assessment), all assessments were completed pre- and posttreatment. Two research assistants were present during home visit assessments.

**Demographics**—The research assistant completed a family demographics form. The variables of interest in this study were maternal and paternal age, ethnic/racial background, education, employment, family income, eligibility for federal aid programs, presence of siblings, and target child's educational and therapeutic services received.

**Child behavior problems**—Parents completed the Child Behavior Checklist for Ages 1½–5—CBCL (Achenbach, 2000), a 99-item checklist that indicates child problems. The child's parent specifies, for each item, whether it is not true (0), somewhat or sometimes true (1), or very true or often true (2), now or within the past 2 months. The CBCL yields a Total Problem score, broad-band Externalizing and Internalizing scores, and narrowband scales. *T*-scores of the Internalizing broadband, Externalizing broad-band, and Total Problems scales were used in this study.

**Family impact of the child**—The Family Impact Questionnaire—FIQ (Donenberg & Baker, 1993) is a 50-item questionnaire that covers the “child's impact on the family compared with the impact other children his/her age have on their families.” Five scales measure negative impact and one scale measures positive impact. Of interest for this study were three scales.

The Negative Impact on Feelings About Parenting (9 items) and Social Relationships (11 items) were combined to form a Negative Impact composite (20 items). One scale, the Positive Feelings About Parenting (7 items), formed the Positive Impact composite. Previous work has demonstrated the utility of this measure and the Positive and Negative Impact composite scales for families with and without children who have developmental disabilities (e.g., Baker et al., 2003; Blacher & McIntyre, 2006; McIntyre et al., 2006).

**Parent-child interaction observation**—Parent-child interactions during unstructured activities are important indices of the quality of the dyadic relationship. An observational system was developed in pilot testing for the current study with observation categories rationally derived based on the IYPT core content areas. During pilot testing, I used three (15-min) observations for each assessment. Given that observations were relatively stable and significantly positively correlated,  $r = .96, p < .0001$ , I reduced the assessment to one observation per assessment point. This observation system (Phaneuf & McIntyre, 2007) uses partial-interval coding for seven parent inappropriate behavior categories (Inappropriate Play Behavior, Intrusion on Child's Independence, Positive Consequences for Child's Inappropriate Behaviors, Inappropriate Commands, Lack of Follow Through, Criticism, and Aggression) and event coding for Child-Directed Praise. All observations were videotaped and collected in the family home. A standardized set of materials and instructions were provided to parent-child dyads, which included 10-min free play, 2-min clean-up, and 3-min structured activity (e.g., puzzle) (Phaneuf & McIntyre, 2007).

In the current study I used the combined Inappropriate Behavior Index, a composite of the seven inappropriate behavior categories, and rate of Child-Directed Praise. The combined Inappropriate Behavior Index scores are presented as percentage of intervals containing an inappropriate behavior. Child-Directed Praise is presented as rate per 10 min. Home observations were scheduled based on the family's availability (generally evening or weekend) and occurred within the 2 weeks before treatment initiation and within 2 weeks following treatment completion.

**Consumer satisfaction with intervention**—I used an adaptation of the Consumer Satisfaction Questionnaire (Forehand & McMahon, 1981) to assess parents' perceptions of the group leader's effectiveness, the group dynamics, the videotape vignettes, the usefulness of content covered, and the effectiveness of the program's methods. This scale has 44 items assessed on a 7-point scale and five summary scales demonstrating adequate internal consistency reliability: Overall Program Satisfaction ( $n = 11$  items),  $\alpha = .67$ , Satisfaction With Teaching Tools ( $n = 10$  items),  $\alpha = .77$ , Program Usefulness ( $n = 9$  items),  $\alpha = .74$ , Leader/Therapist Satisfaction ( $n = 5$  items),  $\alpha = .75$ , and Specific Parenting Strategies/Techniques ( $n = 9$  items),  $\alpha = .88$ . This adaptation of the Consumer Satisfaction Questionnaire has been used extensively in evaluating parents' satisfaction with the IYPT series (e.g., Gross, Fogg, Webster-Stratton, Garvey, Julion, & Grady, 2003; Reid, Webster-Stratton, & Beauchaine, 2001; Webster-Stratton, 1994) and has been demonstrated to have sufficient reliability and validity (Reid et al., 2001).

## Interventions

**Experimental group**—The IYPT program (Webster-Stratton, 2001) was used with minor modifications for parents of young children with developmental delay—IYPT Program—Developmental Disabilities (McIntyre, in press). This intervention consists of 12-weekly 2.5-hour group sessions (8 to 12 participants per group) and included the topics of: play, praise, rewards, limit setting, and handling challenging behavior. The treatment manual for the Incredible Years Toddler Program (Webster-Stratton, 2001) was followed, along with the recommended adaptations for developmental delays proposed by McIntyre (in press). This



treatment program uses group discussion, viewing of videotape vignettes of parent–child interactions, role-playing, didactics, and weekly homework assignments (Webster-Stratton, 2000, 2001). In addition to receiving the IYPT Program–Developmental Disabilities intervention, all children were given the usual care, including early childhood education in either half-day ( $n = 9$ ) or full-day ( $n = 15$ ) programs, including special education and related services as outlined by each child’s individualized education program (IEP).

**Control group**—This intervention consisted of the usual care and services afforded to families with young children who had developmental delays and/or behavioral concerns in New York State. All children in this group received early childhood education programs consisting of either half-day ( $n = 10$ ) or full-day ( $n = 15$ ) programs. The majority of the children also received special education services and related therapeutic services implemented by multidisciplinary teams of specialists. These early education programs, like many early education programs, adopted a family-focused orientation (Sandall, Hemmeter, Smith, & McLean, 2005; Trivette & Dunst, 2005).

### Reliability and Treatment Integrity

Two independent observers (blind to experimental or control condition) coded videotaped parent–child interaction data during 50% of videotaped sessions, using interval-by-interval agreement. Interobserver agreement reliability was calculated by dividing the number of agreements by the total (number of agreements plus disagreements) and multiplying by 100%. Interobserver agreement was 99.2% (range = 90.9 to 100) for the combined Inappropriate Behavior Index and 97.4% (range = 93.1 to 100) for Child-Directed Praise. Kappa interobserver agreement was .86 for the combined Inappropriate Behavior Index and .83 for Child-Directed Praise, indicating adequate interobserver reliability. To ensure that the experimental treatment was implemented as intended, I followed a treatment manual with treatment component checklists for each session. An independent observer collected treatment integrity data during 33% of sessions. Treatment was implemented with 100% accuracy.

### Statistical Analysis

I analyzed data using SPSS 15.0 for Windows (SPSS Inc., Chicago). Child and family demographic characteristics were compared with a Student’s  $t$  test for parametric data and a chi-square test analysis for categorical data. Pre- and posttreatment assessment data were compared using repeated measures analysis of variance. A  $p$  value of .05 or less was considered to be statistically significant. Because the groups did not differ in any demographic characteristic, including baseline levels of problem behavior (CBCL) or adaptive behavior (VABS), I did not use covariates in the analyses. Because consumer satisfaction data were collected for participants in the experimental treatment group only, I only present descriptive statistics. Partial eta-squared ( $\eta^2$ ) values are included as effect size estimates. Partial  $\eta^2$  values can be interpreted as the proportion of variance in the dependent variable that is attributable to each effect. These values range from 0 to 1 and are interpreted as variance explained by a particular variable/effect (Pierce, Block, & Aguinis, 2004).

## Results

### Participant Attrition

Forty-nine families met eligibility criteria and consented to randomization ( $n = 24$  experimental treatment,  $n = 25$  control treatment). Three dropped out following baseline assessment and 2 left over the course of the study, yielding 44 families (89.8%) who completed the study (21 experimental and 23 control). Stated reasons for dropping out included lack of time ( $n = 4$ ) and a change in caregiver’s work schedule ( $n = 1$ ). Two of the 5 families who dropped out had a child diagnosed on the autism spectrum. The families who did not complete the study did not

significantly differ from those who completed the study on child or family demographic characteristics.

### Comparability of Groups

Table 1 provides child and family demographics for the full sample ( $N = 49$ ). The majority of children were male and White. All were receiving early childhood education at the time of the study, most under Part B (3–5 years) or Part C (0–3 years) of the Individuals With Disabilities Education Act (IDEA). In addition to special education, nearly all received related services, including speech (81.6%), occupational (77.6%), physical (44.9%), and/or sensory integration (30.6%) therapy and/or in-home applied behavior analysis (ABA) programming (8.2%). Children did not significantly differ on any of the demographic characteristics by group status (see Table 1).

The majority of participating primary caregivers were biological mothers, living with a partner, and approximately 35 years old. This sample was highly educated, with over three quarters receiving some post-secondary education. Less than half of the primary caregivers worked outside of the home and over one third of families received federal aid for themselves or their child. As indicated in Table 1, caregiver and family demographics did not significantly differ by group status.

### Outcome Measures

**Parent–child interactions**—In parent–child videotaped observations, there was a statistically significant Group  $\times$  Time interaction for the parent combined Inappropriate Behavior Index. The percentage of intervals containing inappropriate/negative parenting behaviors significantly reduced for the experimental group but did not significantly change in the control group. Rate of child-directed praise was also observed during parent–child interactions. Although there was a trend approaching significance for parents in the experimental group demonstrating more child-directed praise statements pretreatment than parents in the control group, this difference did not reach statistical significance,  $t(47) = -1.79$ ,  $p = .08$ . Both groups demonstrated increased rates of child-directed praise posttreatment; however, there was not a significant Group  $\times$  Interaction (see Table 2).

**Child behavior problems**—There was a significant Group  $\times$  Time interaction effect for CBCL Total Problems. The magnitude of change over time was greater for children in the experimental group than for those in the control group. Children in the experimental group had significantly lower parent-reported behavior problems than did children in the control group posttreatment. Both groups had lower CBCL scores posttreatment, indicating a statistically significant main effect for time. There was a significant Group  $\times$  Time interaction effect for CBCL broad-band Internalizing Problems. That is, children in the experimental group had significantly lower parent-reported internalizing behavior problems than did children in the control group posttreatment. Both groups had lower CBCL internalizing scores posttreatment, indicating a significant main effect for time. For externalizing behaviors on the CBCL, there was a significant main effect for time; however, the Group  $\times$  Time interaction did not reach statistical significance (see Table 2).

Total problems scores on the CBCL were classified as stable if posttreatment scores were within four points of pretreatment scores. Scores were classified as increased if posttreatment scores were 5 or more points higher than pretreatment scores and decreased if posttreatment scores were 5 or more points lower than pretreatment scores. Based on these classifications of behavioral stability, 62% ( $n = 13$ ) of children in the experimental group had CBCL scores that decreased compared with 26.1% ( $n = 6$ ) of children in the control group. None of the children in the experimental group had CBCL scores that increased, whereas 13% ( $n = 3$ ) of children

in the control group had scores that increased. Slightly more than one third of the children in the experimental group (38.1%,  $n = 8$ ) had stable CBCL scores, whereas more than half of those in the control group (60.9%,  $n = 14$ ) had stable CBCL scores,  $\chi^2(2, N = 44) = 7.14, p = .03$ .

Pretreatment, 54.2% ( $n = 13$ ) of children in the experimental group and 52% ( $n = 13$ ) of children in the control group had elevated CBCL Total Problems  $T$  scores (1.5  $SD$ s above the mean), placing them at high risk for developing a behavior disorder. Posttreatment, 28.6% of children in the experimental group and 47.8% of children in the control group were high risk given their elevated CBCL scores. There was a trend for the high-risk children to show a more robust treatment effect than for those with mild to few behavior problems,  $t(19) = -1.72, p = .10$ , although this did not reach statistical significance at the .05 value.

**Family impact**—There was a statistically significant main effect for time on both the positive and negative impact scales. Posttreatment, parents reported more child positive impact and less negative impact on family in both the experimental and control groups. Although not statistically significant, parents in the experimental group reported a 4.45-point reduction ( $SD = 8.77$ ) in negative impact compared with a 2.35-point reduction ( $SD = 6.36$ ) in the control group. Likewise, parents in the experimental group reported a 2.19-point increase ( $SD = 2.71$ ) in positive impact compared with a 0.78-point increase ( $SD = 3.09$ ) in the control group.

### Outcomes by Child Diagnosis

Given that 50% ( $n = 12$ ) of the experimental group consisted of families who had a child diagnosed with an autism spectrum disorder, response to the experimental treatment was examined as a function of diagnosis. Families and children with autism did not show a different response to the intervention compared with children who had other developmental disabilities. There was a trend approaching significance in baseline assessments of parent–child interactions in the autism group versus the developmental disabilities group. That is, 57.5% of intervals contained an inappropriate/negative behavior in the autism group, whereas only 44.5% of intervals contained an inappropriate/negative behavior in the developmental disabilities group,  $t = -1.77, p = .08$ . There were no differences between the autism and developmental disabilities groups in terms of their behavior problems as reported on the CBCL.

### Outcomes by Presence of Support Person

Of the 21 parent participants who completed the experimental treatment, 13 attended treatment sessions alone and 8 attended with a spouse or other support person (7 spouse, 1 other). Parents who attended intervention sessions alone had significantly higher child negative impact on parenting scores on the FIQ posttreatment ( $M = 28.23, SD = 13.07$ ) than did parents who attended with a spouse or other support person ( $M = 19.63, SD = 5.07$ ),  $t(20) = -2.13, p = .048$ . In addition, parents who attended intervention sessions alone had significantly lower child positive impact on parenting scores on the FIQ posttreatment ( $M = 11.46, SD = 3.99$ ) than parents who attended with a spouse or support person ( $M = 15.75, SD = 3.95$ ),  $t(20) = 2.40, p = .027$ . When pretreatment scores on the FIQ were controlled for, these posttreatment differences were no longer significant.

### Consumer Satisfaction

Consumer satisfaction descriptive data are presented for participants in the experimental treatment group only. These participants completed weekly evaluations of intervention content, video vignettes, teaching strategies, and group discussion. Participants indicated that these sessions were helpful (see Table 3). In addition to the brief weekly evaluations, participants in the experimental group completed a more comprehensive final evaluation of the treatment. Participants rated the overall program, teaching tools, usefulness of the program, specific



strategies, and therapist using a 7-point scale. Participants rated the program as somewhat to very useful, with participants attending sessions with a support person rating the teaching tools used in the intervention as more useful ( $M = 6.12$ ,  $SD = 0.61$ ) than did participants attending sessions alone ( $M = 5.33$ ,  $SD = 0.86$ ),  $t(20) = 2.24$ ,  $p = .037$ . Another indicator of consumer satisfaction is attendance at weekly intervention sessions. The average attendance rate was 88.5% of sessions (range = 67% to 100%). All but 3 families ( $n = 18$ ) attended 75% or more of the sessions. Attendance was significantly correlated with CBCL Total Problems change scores,  $r = -.46$ ,  $p = .04$ . That is, better attendance was associated with decreases in children's problem behavior, suggesting a possible dosage effect.

## Discussion

Results of this study demonstrate that the IYPT Program with developmental delay modifications is an acceptable intervention for use with parents who have young children with developmental delay or disabilities. Furthermore, results suggest that this program was successful in reducing negative and inappropriate parent-child interactions and child behavior problems relative to a usual care control group. The experimental and control treatments did not differ with respect to parents' subjective evaluations of child positive and negative impact on the family; however, both groups reported less negative impact and more positive impact over time. This result may indicate that usual care supports (e.g., early intervention, preschool services) may decrease parents' subjective reports of negative impact/stress and increase subjective reports of positive impact. More research is needed to ascertain if this phenomenon is simply regression to the mean or if early education and child and family services (e.g., Individualized Family Service Plan and IEP special education and related services) do indeed reduce parental stress and increase parent-reported positive feelings toward the child.

Based on findings in the current study, there is some evidence that the IYPT Program-Developmental Disabilities may be most effective when attendance in treatment sessions is high and there are elevated levels of distress and child behavior problems pretreatment. The beneficial effect associated with having a support person present during intervention was no longer significant when child impact on parenting was controlled for. Support may have been related to pre-existing conditions within the family, such as parenting stress. Thus, more research is necessary to examine the effects of support on child and parent outcomes.

Although treatment effects were more pronounced when there were elevated levels of child behavior problems pretreatment, it should be highlighted that the experimental treatment is still considered secondary prevention. All children were viewed as at risk for developing behavior disorders given their developmental status. Indeed, approximately 50% of the sample had elevated scores on the CBCL, indicating risk for developing a behavior disorder; however, none of the participants had diagnosed behavior disorders (per parent report) at the time of the study. Furthermore, none of them were placed in self-contained settings due to the presence of behavior problems. Although there were larger treatment effects for children who had higher levels of maladaptive behavior pretreatment, the effects of the intervention were large and provide evidence that the IYPT Program-Developmental Disabilities may be appropriate for families who have a child with or without behavioral problems. Indeed, the focus of this program was to increase both positive parent-child interactions as well reduce negative and coercive interactions. Future researchers could investigate whether the IYPT Program-Developmental Disabilities, when used as secondary prevention, reduces the onset of behavior disorders as well as enhances positive parenting practices.

Families of a child with autism did not respond differently to the experimental treatment than did families with a child who had other developmental disabilities. There was a trend, however, for families with a child who had autism to have more negative/inappropriate observed parent-

child interactions pretreatment than did families with a child who had other developmental disabilities. Posttreatment, there were no differences between the autism and developmental disabilities groups within the experimental condition. Although my recruitment strategy did not emphasize participation of families with a child who had autism, nearly 40% of the total sample had a child diagnosed on the spectrum. Thus, the current sample of families with developmental delay may have had some unique characteristics. For example, several families of children with autism reported to me that they were searching for behavioral strategies to use with their children and, given the emphasis placed on principles of applied behavior analysis, volunteered for the study. Future studies could be designed to investigate treatment outcomes in a larger sample of families with children who have autism to determine whether treatment effects were an artifact of the current sample or are more widespread.

Study findings should be interpreted in the context of a group of voluntary participants. Parents responded to recruitment flyers and, upon screening, agreed to be randomly assigned to an experimental treatment group or a usual care control group. Upon study completion, the experimental treatment was offered to all participants who were in the control group, with 87% accepting. The interest and motivation to participate in the IYPT Program–Developmental Disabilities may suggest that the experimental treatment provides a valuable and desirable family-focused intervention for parents who have a young child with developmental disabilities. Overall, the interest in the IYPT Program–Developmental Disabilities, treatment satisfaction data, attendance rates, and relatively low attrition, suggest that this program is a socially valid intervention for this population.

This study is unique in that it provides an early intervention approach to reducing risk factors that may be associated with developing a severe behavior disorder and possible dual diagnosis. Of importance in the present study is the focus on altering parent–child interactions. Transactional models of parent–child interactions provide a framework for understanding developmental psychopathology. Indeed, negative, coercive parent–child interactions, coupled with other risk factors (e.g., child development status, socio-demographic factors) may increase the likelihood of poor socioemotional or behavioral outcomes for children (Sameroff & Chandler, 1975; Sameroff & Fiese, 2000). Interventions that assist parents with developing positive parent–child interactions and use appropriate behavior management strategies may be one approach to mitigate the risk for development of a severe behavior disorder associated with dual diagnosis in young children with developmental disabilities.

In this research I used a randomized controlled trial design to investigate the effects of an experimental treatment relative to a usual care control group. The usual care for young children with developmental disabilities is generally family-focused; however, usual care does not often explicitly focus on parent–child interactions or the teaching of behavior management strategies to reduce existing behavior problems and prevent the development of new problems (Trivette & Dunst, 2005). Furthermore, usual care may not always provide families the social support that may be important for combating the negative impact that many parents experience while raising a son or daughter with a developmental and behavioral disorder. Parent education and support is important, and behavioral parent training has measurable and meaningful outcomes for many participating families. Although in this study I used a rigorous experimental design, I did not obtain follow-up outcomes. Thus, the extent to which these findings generalize to other family members (e.g., partners/spouses) and maintain over time is yet to be determined. Furthermore, the generalizability of the data is limited due to the relatively homogeneous sample of White, middle-class families drawn from one geographical region.

Although all families received usual care for their children, only the experimental group received the additional IYPT Program–Developmental Disabilities intervention. Thus, findings may be due to a dosage effect. That is, the experimental families received more

services. Future researchers could compare a usual care plus social support treatment (12 weeks for 2.5 hours per week) with the IYPT Program—Developmental Disabilities treatment to parse out the therapeutic benefits of group-based intervention for parents and examine the effects of two similarly dosed treatments. The results from the present study are promising in that a parent-training approach that has historically been used with parents who have a child with or at-risk for externalizing behavior disorders has been successfully applied to parents of children with developmental disabilities. Replication and extensions of this study may be important for enhancing our work with families with children who have developmental disabilities.

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## Child and Family Demographics by Group

Table 1

Demographic	Experimental (n = 24)		Control (n = 25)		t/X <sup>2a</sup>
	Mean/n	SD/%Mean/n	SD/%		
Child					
Mean age <sup>b</sup>	4.11	1.03,68	0.8		-1.76
No. male	19	79,217	68.0		<b>0.78</b>
No. White/Caucasian	19	79,218	72.0		<b>0.34</b>
No. diagnosed with autism	12	50,07	28.0		<b>2.50</b>
No. in special education	22	91,723	92.0		<b>0.00</b>
No. related services	22	91,720	80.0		<b>1.65</b>
Mean VABS	61.38	11,262.72	7.6		0.49
Caregiver/Family					
Mean age <sup>b</sup>	34.91	7,036.46	8.52		0.68
No. biological mother	19	79,220	80.0		<b>0.00</b>
No. living with partner	19	79,218	72.0		<b>0.34</b>
No. with some college	18	75,019	76.0		<b>0.01</b>
No. working part- & full-time	8	33,311	44.0		<b>0.60</b>
No. with family income <\$35,000/yr	9	37,59	36.0		<b>0.01</b>
No. federal aid recipients	8	33,311	44.0		<b>1.54</b>
No. siblings present	21	87,517	68.0		<b>2.67</b>
No. sibling problems	8	38,110	58.8		<b>1.62</b>

<sup>a</sup> Chi-squares in boldface. All *dfs* for *ts* were 48; for chi-squares, 1, 48.

<sup>b</sup> In years.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

## Pre- and Posttreatment Outcomes by Group

Table 2

Variable/Treatment	Experimental		Control		Time effect			Group × Time	
	Mean	SD	Mean	SD	F(2, 44)	Partial $\eta^2$	F	Partial $\eta^2$	
Intervals inappropriate behavior (%)									
Pre-	52.91	29.37	47.06	23.39	21.25 <sup>***</sup>	0.37	19.52 <sup>***</sup>	0.37	
Post-	11.98	13.30	46.19	22.52					
Child-directed praise									
Pre-	5.27	3.33	3.65	3.03	7.70 <sup>**</sup>	0.15	2.60	0.06	
Post-	9.27	8.02	4.83	5.46					
CBCL <sup>a</sup>									
Total Problems T Score									
Pre-	63.24	9.58	63.78	12.70	20.34 <sup>***</sup>	0.33	5.28 <sup>*</sup>	0.11	
Post-	57.62	9.03	61.96	12.25					
Internalizing Problems T Score									
Pre-	60.71	8.92	59.91	11.87	9.52 <sup>**</sup>	0.18	5.89 <sup>*</sup>	0.12	
Post-	55.62	9.39	59.30	10.17					
Externalizing Problems T Score									
Pre-	62.19	11.60	63.00	14.45	16.55 <sup>***</sup>	0.28	2.53	0.06	
Post-	56.33	10.45	60.43	14.23					
FIQ <sup>b</sup> Negative Impact Composite									
Pre-	29.55	13.40	29.48	11.48	8.62 <sup>**</sup>	0.17	0.82	0.02	
Post-	25.10	11.67	27.13	11.83					
FIQ <sup>b</sup> Positive Impact Composite									
Pre-	10.90	4.74	10.61	4.74	11.41 <sup>**</sup>	0.21	2.56	0.06	
Post-	13.10	4.43	11.39	4.56					

Note. Experimental  $n = 21$ ; control,  $n = 23$ .

<sup>a</sup> Child Behavior Checklist for Ages 1½-5.

<sup>b</sup> Family Impact Questionnaire.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

**Table 3**Consumer Satisfaction With Experimental Treatment ( $N = 21$ )

Variable	Mean	<i>SD</i>	Range
Weekly session evaluations <sup>a</sup>			
Content	3.71	.30	2.86–4.00
Video vignettes	3.53	.43	2.60–4.00
Teaching strategies	3.81	.28	3.00–4.00
Group discussion	3.73	.36	2.63–4.00
Final treatment evaluation <sup>b</sup>			
Overall program	6.06	.40	4.82–6.55
Teaching tools	5.64	.85	4.00–7.00
Usefulness of program	5.65	.90	3.33–6.64
Specific parenting strategies	5.61	.84	3.67–6.80
Therapist	6.89	.24	6.00–7.00

<sup>a</sup>4-point scale: 1 = not helpful, 2 = neutral, 3 = helpful, 4 = very helpful.

<sup>b</sup>7-point scale: 1 = extremely useless, 2 = useless, 3 = slightly useless, 4 = neutral, 5 = somewhat useful, 6 = useful, 7 = very useful.