Marquette University
e-Publications@Marquette

Dissertations (2009 -) | Dissertations, Theses, and Professional Projects

The Impact of Treatment Intensity on a Parent and Child Therapy Program

Jennifer Carrasco
Marquette University

Recommended Citation
Carrasco, Jennifer, "The Impact of Treatment Intensity on a Parent and Child Therapy Program" (2010). *Dissertations (2009 -)*. Paper 67.
http://epublications.marquette.edu/dissertations_mu/67

THE IMPACT OF TREATMENT INTENSITY ON A PARENT AND CHILD THERAPY PROGRAM

By

Jennifer M. Carrasco

A Dissertation submitted to the Faculty of the Graduate School,
Marquette University, in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

Milwaukee, Wisconsin

May 2011

ABSTRACT
THE IMPACT OF TREATMENT INTENSITY ON A
PARENT AND CHILD THERAPY PROGRAM

Jennifer M. Carrasco

Marquette University, 2011

Behavior problems are prevalent in toddlers and preschoolers and can cause significant distress for caregivers and adversely affect young children's development. Research has shown that participation in Parent-Child Therapy (PCT) programs significantly reduces childhood behavior problems while increasing positive parent and child behaviors. Yet past research has not attended to the role of treatment intensity on program effectiveness, and the question of whether greater doses of treatment are associated with stronger outcomes in PCT programs has yet to be explored. The present study investigated the impact of treatment intensity on outcomes in a treatment program for low-income children age five years and younger with externalizing behavior problems, the majority of whom also had a developmental disability. For the study, children who had significant behavior problems (i.e., met the clinical cut-off score on the Eyberg Child Behavior Inventory intensity subscale) were randomly assigned to either a standard or an intensive level of treatment. Participants assigned to the intensive treatment level received 50% more treatment sessions than those allocated to the standard level of treatment. Sixty children (30 standard; 30 intensive) who completed the treatment program were included in the analyses. Results indicated that group classification (i.e., standard or intensity) did not affect child and caregiver outcomes differentially. Regardless of their level of treatment intensity, children and caregivers demonstrated significant positive change on all dependent measures. After treatment, participants in both groups showed decreases in child behavior problems and caregiver use of verbal and corporal punishment as well as increases in child compliance, caregiver nurturing, positive parent-child interactions and the quality of the parent-child relationship. These positive changes were maintained at a six week follow-up. Limitations of the study, suggestions for future research, and implications for clinicians are discussed.

ACKNOWLEDGEMENTS

It is with sincere appreciation that I take this opportunity to acknowledge those who have helped me during my journey. Without the love and support of my family, friends and colleagues, this accomplishment would not have been possible.

There are many people who have contributed to my learning as I have completed my graduate studies. First, I would like to thank my advisor and dissertation chair, Dr. Robert Fox, Ph.D., whose guidance, support and dedication have been critical to my personal and professional development. I truly appreciate the opportunities he has provided me and the powerful effect they have had on my journey. I would like to offer special thanks to Dr. Lisa Edwards, Ph.D., and Dr. Rebecca Anderson, Ph.D., for their willingness to serve on my dissertation committee and to Dr. Naveen Bansal, Ph.D., for his statistical guidance. The faculty and graduate students at Marquette University have also been a tremendous source of support for me. The richness of my graduate experience is a direct result of their expertise, integrity, suggestions, and feedback.

I would also like to thank the staff and students at the Behavior Clinic for their hard work providing treatment and collecting data. Without their dedication, flexibility, and passion for working with young children and their families, this dissertation would not have been possible. Additionally, I appreciate the ongoing assistance and support provided to me by Patti Grede and the entire staff at Penfield Children's Center.

Finally, I would like to express sincere gratitude to my family. My sisters, brother-in-laws, and in-laws have been wonderfully encouraging. I owe a special debt of gratitude to my parents for the support they have provided me during my doctoral studies and throughout my life. I would especially like to thank my husband, Mark, and my children, Jeremy, Kali and Trace, whose never-ending love, patience and support are the foundation for my strength and inspiration. I truly appreciate everything they have sacrificed to make it possible for me to pursue my dreams and achieve my goals. I dedicate this dissertation to them in recognition of the completion of one phase of my journey and in celebration of all that lies ahead.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS i

LIST OF TABLES iv

CHAPTER 1: INTRODUCTION 1
Statement of the Problem 4
Purpose of the Study 6
Research Questions 6
Significance of the Study 7

CHAPTER 2: REVIEW OF THE LITERATURE 8
Overview 8
Parent and Child Therapy Programs 9
Parent-Child Interaction Therapy 10
Triple P-Positive Parenting Program 15
Incredible Years Parent Training Program 19
Parenting Young Children Program 23
Limitations 27
Treatment Intensity 28
The Dose-Effect Model 29
Parent and Child Therapy 33
Limitations 34
Conclusions 36

CHAPTER 3: METHODOLOGY 38
Participants 38
Research Design 41
Procedures 42
Behavior Clinic 42
Assessment Protocol 43
Treatment Program 44
Measures 46
Eyberg Child Behavior Inventory 46
Parent Behavior Checklist 46
Parent-Child Interaction Assessment 47
Child Compliance 48
Parent-Child Relationship Scale 49

CHAPTER 4: RESULTS 50
Data Analyses 50
Research Questions 53
Summary 56

CHAPTER 5: DISCUSSION 57
Parenting Young Children Program 57
Role of Treatment Intensity 65
Limitations 69
Suggestions for Future Research 72
Implications 75

REFERENCES 77

APPENDIX A (CONSENT FORM) 86
APPENDIX B (INTAKE FORM) 88
APPENDIX C (PARENT-CHILD INTERACTION ASSESSMENT) 94
APPENDIX D (SUMMARY OF TREATMENT CONTENT BY SESSION) 96

LIST OF TABLES

Table 1: Demographic Data for Standard Treatment and Intensity Treatment Groups at Pre-test 39

Table 2: Means and Standard Deviation Scores by Group at Pre-test, Post-test and Follow-up 52

Chapter 1 - Introduction

Toddlers and preschool children commonly display challenging behaviors including temper tantrums, non-compliance, aggression, destructiveness, and over activity (Roberts, Mazzucchelli, Taylor, & Reid, 2003). Such externalizing behaviors often reflect a child's normal development; however, some may become more severe and problematic. Estimates are that between 10% and 15% of preschool children (aged 2-6 years) have mild to moderate behavior problems (Campbell, 1995). When these behavior problems become pervasive and persistent, they cause significant distress for caregivers (Baker & Heller, 1996; Eyberg, Boggs, & Rodriguez, 1992) and can adversely affect children's interpersonal relationships (Greene & Doyle, 1999), development of social skills (Mendez, Fantuzoo & Ciccetti, 2002), and academic achievement (Neilson & McEvoy, 2004). Further, the severity and persistence of externalizing behavior problems lead some children to be diagnosed with psychiatric diagnoses. Diagnoses including oppositional defiant disorder, attention deficit hyperactivity disorder, and conduct disorder are used with very young children (Keenan & Wakschlag, 2002).

The development and maintenance of behavior problems in young children is influenced by many factors including child factors (e.g., temperament, gender, and developmental delays), parental factors (e.g., age, education level, and parenting knowledge and skills) and environmental factors (e.g., socio-economic status, marital discord, and parent-child interactions). It is widely accepted that a myriad of contributing factors can potentially influence the development and maintenance of externalizing behavior problems in young children. In fact, it appears that certain factors put children at increased risk for the development of behavior problems. For example, the prevalence of

behavior problems in young children with developmental delays ranges from 20% to 64% (Roberts et al., 2003) and almost 30% of young children from low-income families are reported to have behavior problems (Qi & Kaiser, 2003).

Significant behavior problems in early childhood often do not dissipate over time. Rather, research shows that these difficulties are moderately stable between two and five years of age (Achenbach, Edelbrock, & Howell, 1987; Baker et al., 2003). It has been estimated that approximately half the children identified with disruptive behavior by preschool age will have problems that persist into the elementary school years and even adolescence, thereby continuing on a path of adjustment difficulties and longstanding behavior problems (Campbell, 1995). In fact, developmental theorists have proposed an "early-onset" pathway that begins formally with the emergence of ODD in the early preschool years, progresses to aggressive and non-aggressive (e.g., lying, stealing) symptoms in middle childhood, and then develops into the most serious symptoms by adolescence, including interpersonal violence, substance abuse, and property crimes (Lahey, Loeber, Quay, Frick, & Grimm, 1992).

Given the potentially poor prognosis for young children with serious behavior problems, there has been growing recognition that early intervention could be a critical step in preventing long-term negative outcomes (Innocenti & White, 1993). The toddler and preschool years present a unique window of opportunity for intervention to interrupt the "early-onset" developmental pathway before these challenging behaviors become crystallized and more resistant to change. There is evidence that the earlier the intervention is offered, the more positive the child's behavioral adjustment at home and school and the greater the chance of reducing further problems such as peer rejection,

violence, delinquency, school dropout and substance abuse (Webster-Stratton & Taylor, 2001).

Numerous treatment programs have emerged that focus on preventing or decreasing challenging behaviors while increasing pro-social behavior in young children (Eyberg, Nelson, & Boggs, 2008). The primary treatment approach used in these programs is parent management training or parent-child therapy (PCT), where parents are taught alternative ways to respond to their children including increasing play interactions and effectively using positive reinforcement and proven limit-setting strategies. PCT programs incorporate applications of social learning theory, principles of operant theory, tenets of developmental psychopathology and the use of cognitive and behavioral procedures; they typically explain the relationship between parenting and problematic child behavior using a transactional model which suggests that the dynamic interactions between a child and parent predict developmental outcomes (Sameroff & Fiese, 2000).

Research shows that participation in PCT programs significantly reduces childhood behavior problems and harsh parenting techniques while increasing positive parent and child behaviors (Eyberg, Boggs & Algina, 1995; Nicholson, Brenner, & Fox, 1999; Sanders, Markie-Dadds, Tully, & Bor, 2000; Webster-Stratton, 2001). However, while the positive results from these programs demonstrate their effectiveness, there is evidence that some children and families do not make expected gains and/or complete treatment (Kazdin, Holland & Crowley, 1997). Research shows that of families who begin treatment for their children, 40% to 60% will terminate prematurely (Kazdin, 1996; Wierzbicki & Pekarik, 1993) and individuals from low-income populations are at an increased risk for dropping-out of therapy (Wierzbicki & Pekarik, 1993).

Statement of the Problem

While the literature suggests that the leading PCT programs effectively change parental behaviors, improve young children's behavior problems, and stop the cycle of escalation and chronicity, it appears that treatment programs for behavior problems are not universally effective for those seeking treatment and may not meet the individual needs of all children and their families. Ongoing evaluation and continued development of these treatment programs are necessary in order to improve attrition and increase their benefit. While researchers have begun to explore the impact of participant factors including child gender, maternal depression, parental stress, and communication deficits on PCT treatment completion and outcomes, other participant factors have been minimally examined. Specifically, research on implementing these programs with some of the most at-risk preschoolers, i.e., those from low-income families or who have developmental delays, is severely limited.

Furthermore, it has been suggested that the research has not attended to the potential impact of critical treatment factors (Kazdin, 2000). Treatment factors such as the setting, format, dose and length of treatment are believed to play an important role in treatment (Webster-Stratton & Hammond, 1997). In particular, the level of treatment intensity (i.e., the number, frequency and regularity of sessions) has been described as a central aspect of treatment (Kordy, Rad, & Senf, 1998) and a positive correlation between the amount of treatment and the amount of therapeutic benefit is highlighted by many in the field of mental health (Bush, Glenwick, & Stephens, 1989; Kordy, von Rad, & Senf, 1988; Sandell, Bloomberg, & Lazar, 2002).

Despite findings that treatment intensity predicts positive treatment outcomes (Medalia & Richardson, 2005), there is dearth of studies that examine treatment intensity in the context of PCT. It has been suggested that parent training programs less than 10 hours in duration are less likely to be effective with parents of children with conduct disorders (Kazdin, 1987) and that families who attend more sessions (greater than 50%) have more successful outcomes than families with poor attendance (Strain, Steele, Ellis, & Timm, 1982). A few studies have examined modified versions of PCT programs where fewer face-to-face treatment sessions are supplemented with telephone consultations (Hoath & Sanders, 2002; Ireland, Sanders, & Markie-Dadds, 2003; Leung, Sanders, Leung, Mak, & Lau, 2003; Nixon, Sweeney, Erickson, & Touyz, 2003) and improvements on measures of disruptive child behavior and positive parenting have been found. However, these studies have compared different intervention approaches with varying content and only one study compared effects to a treatment-as-usual condition. As a result, little light has been shed on the issue of the impact of the level of treatment intensity on attrition and outcome.

The systematic study of differential treatment intensities may prove particularly critical to improving the efficacy of PCT programs, particularly with more at-risk children and their families. Treatment intensity has been described as "… a dynamic, multifaceted dimension of intervention" (p.76) that is critical to the development of optimal, efficacious interventions for at-risk children (Warren, Fey & Yoder, 2007), but studies have not adequately controlled for treatment intensity (Jensen, Weersing, Hoagwood, & Goldman, 2005). To date, the role of treatment intensity in PCT programs

is not known and the question of whether greater doses of treatment are associated with superior response in these programs has yet to be explored.

Purpose of the Study

The purpose of this study is to investigate the impact of treatment intensity on outcomes in a treatment program for low-income children age five years and younger with externalizing behavior problems, the majority of whom have a developmental disability. Specifically, this research will study treatment outcomes for individuals participating in an individualized-format of the Parenting Young Children (PYC) program (Fox & Nicholson, 2003) provided at two different intensity levels. PYC was selected for this study as it historically has been a program targeted at treating young children, particularly those from low-income families and with a disability. In order to assess whether there are differential outcomes based on the amount of treatment received, participants will be placed in one of two groups: standard treatment (receiving eight, once-weekly treatment sessions) or intensity treatment (receiving eight, twice-weekly and four, once-weekly treatment sessions).

Research Questions

This study addresses the following research questions:

1. Do scores on the Eyberg Child Behavior Inventory's intensity or problem scales differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?
2. Do scores on the Parent Behavior Checklist's discipline and nurturing scales differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

3. Do scores on the Parent Behavior Checklist's expectations scale differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?
4. Do child compliance percentages differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?
5. Do directly observed child behaviors during parent-child interactions differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?
6. Do directly observed parent behaviors during parent-child interactions differ significantly between parents in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?
7. Do scores on the Parent-Child Relationship Scale differ significantly in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Significance of the Study

Outcomes determined in this study may show that PYC, a program established to be effective at its standard level of intensity, is more effective at a higher intensity level. In addition, this study will extend the current literature on the efficacy of parent and child therapy programs by further exploring the effectiveness of PYC with very young children with behavior problems from low-income backgrounds that have a developmental delay. Not only will the present study help to determine if the PYC program is effective with this at-risk population, but the results will aid in the identification of factors related to

how treatment is optimally delivered (i.e., the number and frequency of sessions). If greater doses of treatment are found to be more effective, this information will inform future program changes to maximize outcomes. Knowing how treatment intensity affects outcomes will enable practitioners to determine ways to best help young children with externalizing behavior problems. Providing more effective interventions may further interrupt the negative developmental pathway of young children with behavior problems, potentially leading to fewer long-term problems, higher quality of life and less cost to society at large.

Chapter 2 – Review of the Literature

Overview

The purpose of this study is to investigate the impact of differing levels of treatment intensity on treatment outcome in an individualized-format of the Parenting Young Children program. This chapter will explore the efficacy of the leading parent and child therapy (PCT) programs for young children with behavior problems as well as how the issue of treatment intensity has been studied in psychotherapy research.

In order to gain a thorough understanding of the effectiveness of PCT, the most current, widely-used, and researched programs for young children to date will be highlighted. Specifically, efficacy research for the following treatment programs will be reviewed: Parent-Child Interaction Therapy (Eyberg, Boggs, & Algina, 1995), the Triple P-Positive Parenting Program (Sanders, 1999), the Incredible Years Parent Training Program (Webster-Stratton, 1990), and Parenting Young Children (Fox & Nicholson, 2003). Next, the body of research on dose-effect relationships in psychotherapy will be examined as it is the primary means of systematically exploring the issue of treatment

intensity in psychotherapy to date. Finally, the role of treatment intensity in parenting programs will be evaluated.

Parent and Child Therapy Programs

Introduction

Across the leading PCT programs there is an adherence to a foundation in social learning theory and cognitive behavioral treatment approaches. There is also consistent use of multiple strategies to address the myriad of child, family and environmental factors that contribute to the development and maintenance of behavior problems in young children. While the programs may differ in their method of content delivery (i.e., videotapes, discussion, modeling) they teach parents similar techniques designed to prevent or decrease challenging behaviors while increasing pro-social behaviors. Techniques taught include non-directive play, positive reinforcement for positive behavior (e.g., verbal encouragement and praise, positive physical contact, tangible rewards), increasing child compliance through giving effective requests, setting clear rules and limits, and providing immediate and appropriate consequences for negative behavior (e.g., ignoring, natural consequences, time-out). Most programs also address other general topics like normal child development, parental stress, problem solving and seeking community support.

PCT programs are designed to provide between 8 and 14 once-weekly, treatment sessions where parents meet with a therapist to learn strategies for managing child behavior problems. They are most often provided in a group context with 8 to 12 parents in community or clinic settings however, several programs have individualized formats and include children in treatment. Some versions of PCT programs are further tailored to

meet the unique circumstances of each family and are conducted in the home setting. There are also modified versions of PCT programs that utilize phone consultations as a means of individualizing treatment implementation.

Some PCT programs use clinician modeling of strategies with children and parent coaching during treatment. These opportunities for parents to practice new skills and get immediate feedback about their performance are unique to individualized PCT formats. In contrast, group delivery formats do not have provisions for child involvement nor are observations of parents interacting with and managing challenging child behaviors by therapists required, except for assessment purposes. In the group format, parents are encouraged to practice techniques at home and discuss their experiences implementing them with group members and therapists, but there is no means of providing direct remediation of incorrect parental implementation by therapists.

Parent-Child Interaction Therapy

Parent Child Interaction Therapy (PCIT) is a program for children ages 2-7 years that employs a two-stage model of PCT that integrates attachment theory and research indicating that authoritative parenting styles are associated with poorer child outcomes. As outlined by Brinkmeyer and Eyberg (2003), families in PCIT typically receive 12-14 weekly, one-hour treatment sessions in a laboratory or clinic setting where parents learn two interaction patterns: child-directed and parent-directed. In the child-directed interaction (CDI) phase, the emphasis is on increasing positive parenting and warmth in the parent-child interaction through play. Parents learn to follow their child's lead during play and to refrain from criticizing their child's behaviors, asking questions and giving commands. Rather, parents are taught to combine the use of positive attention skills with

active ignoring skills in order to apply differential social attention to positive and negative child behaviors during play. CDI skills become the foundation for discipline skills that are introduced in the parent-directed interaction (PDI) phase. In PDI, the focus shifts to reducing children's noncompliance as parents learn and practice giving clear, age-appropriate instructions to their child during play and following through with praise (upon completion) or time-out (upon noncompliance). Parents are coached by therapists behind a one-way mirror during interactions with their child via bug-in-the-ear listening devices until they are ready to use the procedures on their own. Parents are also expected to practice the skills at home and gradually expand PDI skills used during play to times when it is necessary for their child to obey in his/her natural environment.

A number of studies have examined the effectiveness of PCIT. Eisenstadt, Eyberg, McNeil, Newcomb, and Funderburk (1993) randomly assigned 24 families referred to treatment for their children diagnosed with an externalizing behavior disorder to two groups: one receiving CDI first and another receiving PDI first. After completing 14 program sessions, the PDI- first group demonstrated greater reductions in child behavior problems; however families in both groups reported an increase in child compliance and decreases in conduct problems, activity level and maternal stress. Based on these findings, the authors suggested that the discipline component of the PDI phase may increase parental consistency important to creating child behavior change but concluded that the ordering of the phases did not contribute differentially to outcomes. At 6-week follow-up, results indicated continued improvement in conduct problems, activity level and maternal stress. Further, two years after completing the program, mothers

continued to report post-treatment levels of improved compliance and decreased conduct problems and activity level (Eyberg et al., 2001).

PCIT has been found superior to waitlist control conditions in reducing disruptive behavior in young children. In one study, 64 families of children diagnosed with ODD were randomly assigned to an immediate treatment or a wait-list control group (Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998). Results indicated that parents who received once weekly, 1-hour treatment interacted more positively with their children and reported significant positive changes in parental locus of control, parenting stress, and child behavior than the waitlist group. McNeil, Capage, Bahl, and Blanc (1999) randomly split 32 families into two groups (treatment and waitlist-control). After participating in approximately 14 sessions of PCIT (mean treatment time = 3.5 months), the treatment group showed significantly greater improvements on all dependent measures than the waitlist control group, with mean assessment scores decreasing from clinically significant levels to within normal limits. In comparing outcomes for 34 behaviorally-disturbed preschool-aged children (divided into PCIT treatment and waitlist-control groups) with 21 non-disturbed preschoolers, Nixon (2001) found that parents in the PCIT group reported child behaviors in the normal range and significantly fewer hyperactive behavior in their children after treatment. At 6-month follow-up, levels of oppositional and hyperactive behaviors were comparable between those who had received PCIT and the non-disturbed preschoolers.

Meta-analyses of PCIT have also demonstrated positive changes in both child and parent behaviors. In a meta-analysis summarizing the outcomes of 17 PCIT studies, Gallager (2003) found that improvements from pre- to post-treatment were statistically

significant across all studies. For example, 94% of the studies reported a reduction of parent-rated intensity/frequency of behavior problems, 53% reported increased in clinic-observed compliance rates, and 82% reported clinically significant improvements. Thomas and Zimmer-Gembeck (2007) found medium to large effect sizes for child behavior change from pre- to post-treatment and follow-up based on both parental report (d = .83 - 1.31) and clinician observation (d = .54 - .94). Similar effect sizes were found for clinic-observed changes in parenting behaviors pre- to post-treatment and follow-up (d = .61 – 1.46). When comparing PCIT outcomes to waitlist, effect sizes ranged from .61 to 1.45, favoring PCIT for parental reports of negative child behavior.

The potential use of PCIT with young children and developmental delays has also been reported. Bahl, Spaulding, and McNeil (1999) described one child who had mild developmental delays and oppositional defiant disorder. The child's parents participated in PCIT and, after treatment, reported improvements in their ability to manage their child's behavior and in the intensity of their child's behavior problems. McDiarmid and Bagner (2005) provided a clinical case description where PCIT demonstrated significant improvement in compliance and challenging behaviors in a three-year-old boy with moderate mental retardation, language delays and oppositional defiant disorder. In 2007, Bagner and Eyberg randomly assigned 30 children diagnosed with both ODD and either mild (60%) or moderate (40%) mental retardation to a PCIT treatment group or a waitlist control group. After attending 12 weekly, 1-hour treatment sessions, treatment mothers interacted more positively with their children and reported significantly fewer child disruptive behaviors than mothers in the waitlist group. Children's compliance was also

significantly higher in the treatment group and, for children receiving PCIT, more than 50% demonstrated clinically significant change.

PCIT has been adapted and demonstrated positive effects in treating neglected children, physically abusive families, children at risk for abuse and children with ADHD, language delays, chronic illness, and separation anxiety (Chaffin et al., 2004; Nixon, 2001; Pincus, Eyberg, & Choate, 2005). Abbreviated versions of PCIT have also demonstrated positive effects. In 2003, Nixon, Sweeney, Erickson, and Touyz found that abbreviated PCIT treatment (consisting of 5 face-to-face sessions alternated with 5, 30-minute telephone consultations) had comparable effects to standard PCIT immediately after intervention and at 6-month follow-up. The behaviors of children receiving PCIT have been found to generalize to the school setting as children showed significantly greater improvements than control groups on teacher rating scales and observational measures of classroom behavior after receiving PCIT treatment (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991). Moreover, there is strong evidence of long-term maintenance of PCIT treatment effects. Hood and Eyberg (2003) found that approximately 75% of children who were assessed 4 to 6 years after completing PCIT treatment remained within the normal range of disruptive behavior. One- to 3-year follow-up assessments comparing treatment completers to dropouts found that children and families who completed treatment maintained treatment gains whereas the dropouts showed disruptive behavior and parenting stress at pretreatment levels (Boggs et al., 2004).

Triple P-Positive Parenting Program

The Triple P-Positive Parenting Program (Triple P) is a multi-tiered system of treatment with five levels of intensity designed to match child and family needs based on problem severity. Triple P is designed to enable parents to access information and support from a variety of sources (i.e., media and primary health care and mental healthcare providers) with the goals of helping children self-regulate their emotions and parents build self-confidence in being able to independently solve problems as they occur (Sanders, Cann, & Markie-Dadds, 2003). Level 4 and Level 5 are more intensive interventions that focus on parent training. Level 4 (Standard Triple P) is delivered in 10-12 treatment sessions in either individual or group formats. Treatment sessions are 60-90 minutes long and are typically conducted in local community health and neighborhood centers, however, 1-4 home observation sessions have been incorporated when implementing the program in the individual format. In Standard Triple P, parents are taught 17 core parenting skills (e.g., talking with children, physical affection, attention, setting limits, and planned ignoring) that are designed to increase positive and decrease negative child behaviors. The program also includes planned activities training where parents are taught a routine for managing activities with their child. Level 5 (Enhanced Triple P) implements Standard Triple P along with three individualized adjunct models (Practice, Coping Skills and Partner Support) targeting family stressors (e.g., maternal depression, marital problems).

Sanders, Markie-Dadds, Tully and Bor (2000) examined the effectiveness of the Triple P program by dividing 305 three-year-old children from primarily lower income families at high risk of developing a behavior problem into four groups: (1) Level 4 Self-

Help Triple P where parents independently completed workbook exercises to learn to set and monitor their own goals for child behavior change and to enhance their parenting skills; (2) Level 4 Standard Triple P where parents were taught the same skills as the Self-Help group but through individualized active skills training and support from a trained practitioner in both the clinic/community and home setting; (3) Level 5 Enhanced Triple P where parents learned partner support and coping skills techniques in addition to receiving parent training as in the Standard group; and (4) waitlist control group. Before and after treatment comparisons across the groups indicated significantly fewer child behavior problems based on parental report and clinical observation in the Standard and Enhanced groups than the waitlist group. Parents in the Standard and Enhanced groups also reported significantly lower levels of dysfunctional parenting and greater parental competence, than parents in the Self-Directed group. In addition, the researchers found that there were a significantly greater proportion of children whose behavior had reliably and clinically improved in the Standard and Enhanced treatment groups than the waitlist treatment condition. At follow-up one year later, these two groups (Standard and Enhanced) continued to show greater reliable improvement on parent-observed disruptive child behavior.

Another examination of the difference between Level 4 and Level 5 Triple P treatments involved randomly assigning 87 low-income preschoolers with co-occurring disruptive behavior and attentional/hyperactive difficulties to Standard treatment, Enhanced treatment or a waitlist control group (Bor, Sanders, & Markie-Dadds, 2002). The treatment groups attended individual sessions with a therapist in local community health and neighborhood centers. After completing the intervention, children in both

groups showed significantly fewer problematic behaviors than waitlist controls and those in the Standard group demonstrated significantly less intense disruptive behaviors, according to parent rating scales. Based on clinician observations of problem behavior, the Enhanced group had significantly lower levels than children in the waitlist condition after treatment. Parents from both treatment groups reported significantly lower levels of dysfunctional parenting and competence than waitlist mothers. Further, a significantly greater proportion of children in the two treatment groups demonstrated reliable improvement in behavior when compared to the waitlist condition and, at one-year follow-up, 80% of the treatment children had achieved reliable change in observed child negative behavior.

Researchers have also modified Standard and Enhanced Triple P, providing 4-5 group treatment sessions followed by four, 15-30 minute follow-up phone consultations and no in-home treatment sessions (Hoath & Sanders, 2002; Ireland, Sanders, & Markie-Dadds, 2003; Leung, Sanders, Leung, Mak, & Lau, 2003). Pre- to post-intervention results from these studies indicated significant improvements on measures of disruptive child behavior, dysfunctional parenting styles, and parental sense of competence. Post-intervention assessments showed significantly better improvement by intervention groups than waitlist control groups. Also, two of the studies included a 3 month follow-up assessment and found that the gains in child behavior and parenting practices achieved at post-intervention were maintained.

In a meta-analysis of the Triple P Parenting program, Thomas and Zimmer-Gembeck (2007) examined a total of 11 studies using Triple P. Analyses identified small to medium effect sizes for clinic-observed (d = .31 -.41) and parent report (d = .73) of

child behavior from pre- to post-treatment. Similar effect sizes were found pre-treatment to follow-up for measures of child behavior (*d* = .70, parent report; *d* = .36 - .61, clinic-observed). Effect sizes for changes in parenting behaviors from pre-treatment to follow-up ranged from .28 to .69 as measured by parental report and clinic observation. When comparing Standard and Enhanced Triple P to waitlist, medium to large effects for child negative behavior as reported by mothers (d = .69 - .96) and negative parenting behaviors based on parent self-report (*d* = .98 - 1.07) were found in favor of Triple P.

The Triple P-Positive Parenting Program has been adapted to work with families who have children with a disability. Stepping Stones Triple P (SSTP) was specifically designed for parents with young children with developmental disabilities and incorporates traditional Standard Triple P interventions along with strategies drawn from research on disabilities (Sanders, Mazzucchelli, & Studman, 2004). For example, SSTP emphasizes the importance of teaching children new competencies such as communication skills to help reduce the challenging behaviors that stem from the inability to communicate effectively. The program also focuses on connecting parents with community services to increase their resources as they cope with raising a child with a disability. Sanders and Plant (1989) investigated a preliminary version of SSTP with five families of preschool children with developmental disabilities and behavior problems and found that three of the families were able to successfully implement behavior management strategies that resulted in decreased child behavior problems. Roberts, Mazzucchelli, Studman and Sanders (2006) demonstrated the utility of SSTP in reducing behavior problems in children with a disability by comparing 27 children with a disability receiving SSTP to 21 children with a disability in a waitlist control group. Results found

that, after treatment, mothers participating in SSTP were less over-reactive and reported significant reductions in child behavior problems at post-test and 6-month follow-up. Observations of children's oppositional behavior decreased significantly more from pre- to post-treatment and from pre-treatment to follow-up for SSTP participants than waitlist controls.

Incredible Years Parent Training Program

The Incredible Years Parent Training Program (IY-PT) is a group-training program designed for parents of children ages 2-8 years old with disruptive behavior (Eyberg et al., 2008). In the program, parents meet weekly in groups of 8 to 12 with a therapist for 13-14 sessions (2 hours per session). During treatment, parents view videotaped vignettes demonstrating social learning, child development and behavioral principles such as child-directed play, the strategic use of differential attention (ignoring negative behaviors and praising positive actions), encouragement, praise, and positive and consistent discipline strategies (time-out and natural consequences). By showing parent models in natural situations with their children "doing it right" and "doing it wrong," the vignettes are used to foster group discussions, problem solving and collaborative learning around important components of effective parenting (Webster-Stratton & Taylor, 2001). Topics also cover effective limit setting, ways to strengthen children's social skills, teaching children problem solving, strategies for coping with stress, and getting support from family, friends and the community. Parents in the program are also provided with a copy of the parenting book *The Incredible Years: a Trouble Shooting Guide for Parents* (Webster-Stratton, 1992).

The efficacy of IY-PT has been established through a number of randomized trials. Webster-Stratton (1981) examined this program with 35 mothers and their 3-5 year-old children. The mothers were assigned at random to an early treatment group or a wait-list control group and assessed using a parent attitude survey, behavioral observations of mother-child interactions and a consumer satisfaction measure (Time I). The early treatment group was then divided into two groups of eight parents, with each group attending four, weekly 2-hour treatment sessions. After completing the treatment program (Time II), the early treatment group and the wait-list control group were reassessed. Two weeks later, the wait-list control group began treatment, and upon their completion both groups were tested again (Time III) to determine immediate results for the wait-list group and 6-week follow-up results for the treatment group. When compared with the wait-list group at Time II, the early treatment group displayed significantly fewer lead-taking, dominance, and non-acceptance behaviors as well as significantly more positive affect behaviors. At Time III, the two groups no longer differed statistically and all mothers reported feeling “very positive” about the program and the positive changes in themselves and their children as a result of their participation in the program. Further, at one-year follow-up, significant behavioral changes reported at post-treatment were maintained or improved and the mothers continued to report a significant reduction in the intensity and number of child behavior problems (Webster-Stratton, 1982).

In 1984, Webster-Stratton demonstrated that IY-PT was as effective as individual therapy for children diagnosed with conduct disorder. In this study, 35 children were randomly assigned to individual family therapy, group therapy or a wait-list control group. The group treatment was the IY-PT program while the individual treatment

consisted of one-to-one sessions between the therapist, parent and child. The two treatment groups each received a series of 9, weekly therapy sessions. Results showed that mothers in both treatment groups reported significantly lower rates of non-compliance, fewer and less intense behavior problems, and more positive behaviors in their children after completing treatment. They also reported less use of spanking and were more positive and less critical during interactions with their child. One year later, significant behavioral changes in mothers and children were maintained.

To further investigate its effectiveness, group discussion and individually-administered versions of the IY-PT program have been compared. For example, in one study 194 parents with clinic-referred young children were enrolled in either a wait-list control group or one of three therapy groups participating in 10 to 12, 2-hour intervention sessions: a self-administered videotape-modeling treatment group (IVM), a group discussion videotape modeling treatment group (GDVM), and a group discussion treatment group (GD) (Webster-Stratton, Hollinsworth, & Kolpacoff, 1989). Analyses at pre-test, post-test and 1-year follow-up showed significant improvement in parental report of child behavior problems as well as improvements in parent self-efficacy and decreases in parent distress across all treatment groups. However, GDVM parents reported more consumer satisfaction and perceived their children as significantly more improved at 1-year follow-up than post-test than did IVM parents, suggesting that the group discussion component of the IY-PT program was somewhat superior to just videotape (IVM) or just group discussion (GD).

IY-PT has also been used to address behavior problems in low-income children. Webster-Stratton (1998) examined the effectiveness of IY-PT using pre- and post-test

data for 394 Head Start families that were randomly assigned to an intervention condition and a control group. The intervention group received an abbreviated version of IY-PT which included 8-9 weekly, 2-hour sessions in groups of 8-16 parents. At post-test, in contrast to control mothers, intervention mothers significantly increased their discipline competence, positive affect, praise and positive physical behaviors while significantly decreasing their harsh or critical behavior, commands and negative affect. Intervention children significantly decreased their deviant and noncompliant behaviors, negative affect, misbehavior and poor conduct while the control children remained stable over time. These significant parent and child behavior changes were maintained at follow-up, 12-18 months later. Webster-Stratton, Reid, and Hammond (2001) and Gross, et al. (2003) also used randomized clinical trials to test IY-PT with low-income families (n = 328; n = 208, respectively) enrolled in Head Start programs. In these studies, the previous research was extended as they both included a teacher-training program along with the traditional parent-training program. Using the 12-week program, both teachers and parents met weekly (independent of each other) and were trained in positive management and discipline strategies for the home or classroom. Results demonstrated that intervention parents reported significant improvements in child behavior and management of challenging behaviors and experienced improvements on measures of self-efficacy and parental stress.

Recently, IY-PT was evaluated with children with developmental disabilities (McIntyre, 2008). In the study, 49 families of preschool-aged children with developmental delays were randomly assigned to an experimental or control group. While all of the children were receiving special education/therapy services, the

experimental group also received 12-weekly, 2.5 hour group sessions of IY-PT. Results indicated that parents in both groups demonstrated significant improvements on all measures from pre- to post-test including parental use of praise, negative parenting behaviors, child problem behaviors, as well as positive child impact and negative child impact on family functioning. Two significant between-group differences were found: parents in the experimental group demonstrated significantly fewer negative parenting behaviors during interactions with their children and reported significantly fewer child behavior problems than control parents after the intervention.

Parenting Young Children

The Parenting Young Children (PYC) Program was specifically developed for parents of 1- to 5-year old children to help them more effectively respond to their child's challenging behaviors (Fox & Nicholson, 2003). In this program, parents are first taught to attend to their thoughts and feelings about their child's behaviors and to how these internal events effect their reactions to their child. In an effort to learn a more thoughtful parenting style, parents are encouraged to apply the STAR cognitive strategy. Using a familiar stop-and-go traffic light, parents are taught to first S-stop (red light) themselves from immediately reacting to their child's behavior and then T-think (yellow light) about their feelings. The goal of this segment of the program is to provide parents with time to regain emotional control by considering their thoughts and feelings and how they might alter them through various techniques (e.g., breathing exercises, counting to ten). The second segment of the program focuses on parents' developmental expectations for their children. Parents are provided information about child development which they can apply and A-ask (yellow light) themselves if their expectations for the child are

developmentally appropriate. If their expectations are not developmentally appropriate, parents are encouraged to alter their expectations before responding to their child. The final two segments of PYC emphasize new ways to R-respond (green light) through the use of both positive parenting and discipline strategies. Parents are taught strategies to strengthen their children's pro-social behaviors including positive reinforcement, establishing routines and giving good instructions. They are also taught how to set limits and provide developmentally appropriate consequences for their children's challenging behaviors through the use of redirection, ignoring, natural consequences, and time-out. PYC was developed to be delivered in different formats (e.g., group, individual) but generally comprises a minimum of 10 to 15 hours of instruction combined with in-home practice.

Initial investigations of the effectiveness of the PYC Program examined the program when implemented in group settings. For one study, five group classes (four, 3-hour sessions each) were conducted in five community settings with 75 parents interested in learning how to more effectively discipline their young children (Fox, Anderson, Fox, & Rodriguez, 1991). On post-test evaluations, the parents reported being positive, providing consistent consequences for challenging behaviors, and feeling more in control with their kids receiving time-out instead of spankings. Fox, Fox, and Anderson (1991) had 35 parents of young children receive eight hours of instruction in PYC in a group, community setting. The results found that parents reported significant improvements in parental anxiety and confidence, reductions in emotional reacting to children's challenging behaviors and increased use of positive reinforcement and time-out from pre- to post-test. These results were maintained at a six-week follow-up. When a waitlist

control group was compared to a group of parents receiving the PYC program, results indicated that parents receiving treatment significantly improved their parenting attitudes and decreased their preschool children's behavior problems from pre-test to post-test when compared to the control group (Nicholson, Janz, & Fox, 1998). Further, parents demonstrated a significant decrease in their reported use of verbal and physical punishment while the control group increased their use of these techniques after treatment.

Fox, Duffy and Keller (2006) examined the effectiveness of PYC when provided in an individual format primarily in the home setting. For the study, outcomes for 24 families with children aged 1- to 5-years participating in the program were analyzed. On average, families finished the program in 10, weekly 1-1.5 hour sessions over a 14-week period. The results showed that parents significantly reduced their use of corporal and verbal punishment. Parents reported a significant decrease in the frequency of their children's challenging behaviors and a significant increase in pro-social behaviors. Moreover, facilitator's ratings of the overall quality of the parent-child interaction improved significantly from pre- to post-test.

Implementation of PYC with low-income groups has demonstrated positive results. In a diverse sample of 149 parents, Brenner, Nicholson, and Fox (1999) reported significant pre-post changes with children's challenging behaviors decreasing and parents using less verbal and corporal punishment and increased nurturing. Upon expanding the program to an additional 143 low-income mothers of young children, the researchers found that parents who completed the program showed reductions in discipline, increased nurturing and reported few child behavior problems. Nicholson, Anderson, Fox, and

Brenner (2002) randomly assigned 26 low-income parents of young children to an experimental group receiving 10, 1.5-hour sessions of PYC in groups of four or a waitlist control group. After treatment, the experimental group showed significant reductions when compared to controls in child behavior problems, in parental use of verbal and corporal punishment, and in levels of parent anger and stress. They also demonstrated significant increases in parent and child positive behaviors during play between pre-test and post-test. These positive gains were maintained at one-month follow-up. PYC was extended to parents living in Mexico (Solis-Camara, Fox, & Nicholson, 2000). In comparing 82 Mexican mothers to 63 American mothers, the two groups' pre- and post-treatment scores on self-report measures demonstrated that all mothers statistically significantly changed in their discipline and expectations after treatment and also reported fewer child behavior problems.

PYC has also been provided to low-income families of children with developmental disabilities. In a recent study, data were collected on 102 low-income, preschool children primarily referred for externalizing behavior problems who received PYC through in-home, weekly 60-90 minute treatment sessions (Fox & Holtz, 2009). Criteria for a significant developmental delay in one or more areas of development (e.g., cognition, language, motor) were met by 70% of the sample. After treatment, significant improvements were found in the overall parent-child relationship, the quality of play interactions, child compliance and parent use of praise. Children's behavior problems decreased significantly in both intensity and frequency after treatment. In addition, only 21.4% of the children met criteria for a psychiatric diagnosis at post-test, as compared to 82.7% at pre-test. Holtz, Carrasco, Mattek, and Fox (2009) compared outcomes for a

group of low-income toddlers with developmental delays (n = 27) and without developmental delays (n = 27), the majority of whom were diagnosed with a psychiatric disorder at intake. It was found that once-weekly PYC treatment in the home setting was equally effective for children with and without developmental delays. Specifically, both groups demonstrated significant reductions in child behavior problems, child negative affect during play, and parent use of verbal and corporal punishment. Overall, parent-child play interactions became more reciprocal from pre- to post-test for both groups with significantly increased parent sensitivity and child positive affect and social responsiveness. In addition, of the 40 children who met the criteria for a psychiatric disorder diagnosis at pre-test, 31 no longer met criteria at post-test.

Limitations

Despite the apparent strength of current PCT programs, significant gaps in the research remain. In particular, PCT research has not attended to the potential impact of various treatment factors on their programs and outcomes. Treatment factors such as the setting, format, and dose and length of treatment are believed to play an important role in treatment (Webster-Stratton & Hammond, 1997); however, they have not been evaluated in the existing literature. For instance, while each of the leading PCT programs has a well-defined delivery format, important details of treatment implementation are rarely considered in the research. One example is the tendency to describe the proposed service model rather than the actual intervention. Specifically, program research will indicate the number and duration of treatment sessions (e.g., eight, 2-hour, weekly sessions) but the length of treatment (e.g., mean treatment length) is rarely reported. So it is not known if, for example, the 8 sessions were conducted consecutively or over 12, 16, 20 or more

weeks. As a result, it is difficult to draw conclusions about the intensity of treatment provided and the level of engagement of families which may relate to treatment outcome.

Treatment Intensity

In the mental health field, there is consensus that psychotherapeutic treatment is generally beneficial to patients and a positive correlation between the amount of treatment and the amount of therapeutic benefit has been found (Bush, Glenwick, & Stephens, 1989; Kordy, von Rad, & Senf, 1988; Sandell, Bloomberg, & Lazar, 2002). Across several disciplines, more intensive treatments are associated with more patient improvement. For example, substance abuse programs with high service intensity have lower attrition rates (Sun, 2006) and demonstrate better outcomes than low-intensity programs (Timko & Sempel, 2004). In the area of eating disorders, treatments involving more hours of therapy per week evidence better outcomes than those involving fewer hours (Fettes & Peters, 1992). High intensity of treatment is one of the key characteristics of successful early intervention programs for children with developmental disabilities including autism (Innocenti & White, 1993; Lovaas, 1987), and some have found that treatment intensity has a predictive relationship to outcome that is not mediated by other psychosocial or cognitive factors (Medalia & Richardson, 2005).

Whether or not more intensive treatments result in better outcomes is a topic of interest to many including clinicians, consumers and those responsible for funding care (Feaster, Newman, & Rice, 2003). However, researchers have been cautious to conclude that “more is better” because reports of the positive relationship between treatment level and outcome have emerged from ancillary evaluations that are not the primary focus of the studies (Howard, Kopta, Krause, & Orlinsky, 1986). As a result, a number of

researchers have attempted to explore the issue of treatment intensity systematically by looking for possible dose-effect relationships. This body of research attempts to determine how much therapy is needed to achieve positive results and is based on assumptions that a treatment session is quantitative unit of psychotherapy and that patient response to therapy is a function of treatment dosage. Dose-effect research was initiated by a group of researchers in the mid-1980s who identified the dose-effect model in psychotherapy.

The Dose-Effect Model

The dose-effect model was introduced by Howard, Koptka, Krause, and Orlinsky (1986) with their meta-analysis on 15 samples of adult patients who received individual outpatient psychotherapy (usually once-weekly), covering a period of more than 30 years. The study examined 2,431 patients (reportedly diverse with regard to age, social class, and primary diagnosis) treated by therapists in range of mental health settings. Based on therapist, patient and researcher ratings of patient improvement at different points in therapy, analyzes showed that 30% of clients were measurably improved after 2 sessions, 41% after 4 sessions, 58% after 8 sessions, 62% after 13 sessions, 75% after 26 sessions (at the end of 6 months of once-weekly treatment), and about 85% by the end of a year of treatment. The researchers concluded that the path of client improvement was a negatively accelerating function of treatment length where the effect of therapy was greater in earlier sessions and increased more slowly at higher dosage levels. That is, patients were believed to demonstrate significant improvement early-on in treatment until threshold was reached, at which point the amount of benefit of additional sessions decreased or leveled-off. In this way, they suggested that the relationship between the

number of sessions and patient improvement took a form similar to that evidenced by many medications – a positive relationship with greater probabilities for improvement with more psychotherapy but diminishing returns at higher doses. Based on their findings, it was suggested that patients received effective exposure to treatment at 6-8 sessions and that about 75% of patients should show improvement by 26 sessions.

Once identified, support for the dose-effect model soon followed. Examinations of a sample of 685 adult outpatients, being provided individual psychotherapy by 141 different psychologists, psychiatrists and social workers at five mental health centers, found that reliable, clinically significant improvement was proportionally greater early in treatment (Kopta, Howard, Lowry, & Beutler, 1994). In this study, 50% of patients recovered by the end of 11 sessions, or approximately 2.5 months of once-weekly treatment, and 75% recovered by the end of 58 sessions, or approximately 1 year of once-weekly treatment. Lambert, Hansen and Finch (2001) reported recovery rates from a national sample of patients (*n*= 6.072) undergoing treatment in various settings and found that 50% of patients who began treatment in the dysfunctional range achieved clinically significant change following 21 sessions of psychotherapy. However, more than twice this number of treatment sessions was necessary before 75% of patients reached this same criterion. By using a lesser standard of improvement (reliable change) and including patients who began treatment in the functional range, the researchers found that 50% were estimated to improve following 7 sessions and 75% following 14 sessions.

With evidence that the dosage of therapy needed to achieve change depended on the criteria selected (i.e., clinically significant change versus reliable change) and the level of symptoms severity (dysfunctional versus functional) came questions about how

much treatment was needed to remedy different symptoms. Researchers began extending dose-effect analyses by exploring potentially differential treatment responses based on different symptoms. For instance, upon grouping patients into three diagnostic categories (depression, anxiety, borderline-psychotic), Howard et al. (1986) analyzed the percentage of patients who improved on the basis of researchers' clinical chart ratings and patients' self-ratings during treatment. They found that 50% of the depressed and anxious patients improved in about 8-13 sessions of treatment on both types of outcome criteria. For borderline cases, this level of improvement occurred later, at 13-26 sessions according to patient self ratings and at 26-52 sessions according to researcher ratings. Kopta et al. (1994) also explored the rates at which different psychological symptoms remitted to normal levels during psychotherapy. Using a well-established symptom checklist, the researchers grouped 64 symptoms into three classes (acute distress, chronic distress, and characterological symptoms) and calculated the median effective dose (ED50, i.e., the dosage at which 50% of patients were estimated to have responded to treatment). For acute distress symptoms, the mean ED50 dosage was 5 sessions. Chronic distress symptoms showed a mean ED50 of 14 sessions, and the mean ED50 dosage was greater than 18 sessions for characterological symptoms. Based on these results, the researchers concluded that the relationship between the amount of therapy and patient improvement was related to the type of psychological symptom.

Despite evidence supporting the dose-effect model, there is research showing that the number of sessions and treatment duration are not significant predictors of patient improvement (Shapiro & Shapiro, 1982; Reardon, Cukrowicz, Reeves, & Joiner, 2002). For example, one study found that, while the percentages of patients who achieved

reliably, clinically significant change increased with dose up to session 8, the percentages remained relatively constant after that, suggesting there is no relationship between dose and clinically significant improvement after session 8 (Baldwin, Berkeljon, Atkins, Olsen, & Nielsen, 2009). Another study examined the responses of depressed clients involved in psychodynamic-interpersonal or CBT treatment administered in 8 or 16 sessions. The results showed that more sessions did not necessarily result in better outcomes as clients involved in the 8-session treatment had recovery rates that were higher than half of the clients involved in the 16-session treatment (Barkham, Stiles, Shapiro, Hardy, & Reynolds, 1996).

Mixed results regarding dose-effect relationships in psychotherapy also exist in the children's mental health literature. While positive correlations between improvement and greater lengths of psychoanalysis have been found (Fonagy & Target, 1994), other studies have found no relationship between the duration of treatment and clinical outcomes (Casey & Berman, 1985). It has been documented that children who had larger numbers of treatment sessions demonstrate no better outcomes than those who did not. Salzer, Bickman, and Lambert (1999) examined data for 392 children receiving outpatient mental health services and found a non-significant dose effect despite individual indicators of better improvement for cases with more sessions. In response to these findings that the slope of improvement on outcome measures was about the same for high- and low-dose clients, a second study was conducted by Andrade, Lambert, and Bickman (2000) using data for 592 children who had received outpatient mental health services. For this study, the children were divided into two groups based on their exposure to treatment: negligible (receiving less than 8 treatment sessions) and more-

than-negligible (receiving more than 8 treatment sessions). Using four assessments of their mental health status taken at intake, 6 months and 12 months, the researchers looked to determine if children with substantial treatment improved more than children with negligible treatment. Their results also failed to identify a significant dose-effect of mental health services.

In contrast, Angold, Costello, Burns, Erkanli, and Farmer (2000) analyzed data from 997 children (9 – 16 years old) that met DSM diagnostic criteria (51%) or had psychiatric symptoms causing significant psychosocial impairment (49%). The sample was divided into treated or untreated groups based on whether or not the children had accessed outpatient mental health services. Results indicated that children who entered treatment demonstrated substantial deterioration in symptoms, impairment and a negative impact of their disorders on their parents prior to starting treatment. After treatment, this deteriorating trend was either reversed (symptoms) or halted (impairment and parental impact). Moreover, there was a significant dose-effect with higher levels of treatment being associated with lower levels of symptoms at follow-up. Interestingly, these researchers noted that real improvement was not clearly demonstrated until an individual had received more than 8 sessions.

Parent and Child Therapy

Only two studies in the PCT literature have attended directly to dose-effect relationships. Both of these studies were examining the efficacy of the Incredible Years Parent Training Program when assessing for the maintenance of treatment gains at 1-year follow-up. In the first study, the sample was 23 families of 2-year-old children with mild behavioral difficulties who successfully completed a 10-week intervention consisting of

once-weekly sessions (Tucker, Gross, Fogg, Delany, & Lapporte, 1998). The researchers examined intervention dosage effects on two dimensions, the number of treatment sessions attended and the amount of weekly homework assignments turned it, and found two significant positive correlations. The more groups attended and the more homework completed, the greater the decreases in mothers' negative physical behaviors and critical statements from pre-intervention to 1-year post-intervention. These findings suggested that the amount of treatment families received/participated-in was related to more positive outcomes at follow-up. The second study examined data for 59 families of children aged 3-8 years (referred with antisocial behaviors) that received the IY-PT program once-weekly over 13-16 weeks along with weekly support telephone calls (Scott, 2005). In exploring for a possible dose-effect relationship, there was no significant correlation between the number of sessions and the amount of each child's change. When the sample was divided into those who received eight or fewer sessions and those who received nine or more sessions, the effect size more than doubled but still missed statistical significance. Based on this change, the author suggested that the effect might hold-up in a larger sample.

Limitations

The systematic examination of the role of treatment intensity in therapeutic outcomes has been focused on exploring dose-effect relationships. Yet explorations of the therapeutic effects of different doses of therapy have produced mixed results. Some studies have established a dose-effect relationship in therapy, documenting that higher levels of treatment are associated with better improvement. Other studies have found no such relationship, and some show that fewer sessions are better than more. Researchers

have suggested that the amount of therapy needed to achieve change for 50% of patients is between 8 and 11 once-weekly sessions. However, there are discrepancies in how change is defined and there is evidence that patient response to treatment is related to symptom type and severity.

Overall, the positive relationship between amount of treatment and amount of patient benefit has been loosely documented in the research to date and many have concluded that there is no systematic way to specify dose-effect relationships or determine their accuracy (Baldwin, Berkeljon, Atkins, Olsen, & Nielson, 2000; Feaster, Newman, & Rice, 2003; Jensen, Weersing, Hoagwood, & Goldman, 2005). This may be a result of the fact that examinations of dose-effect relationships have been based on data from studies that were designed for different purposes. Not only have studies examining dose-effect relationships included an array of psychotherapies, treatment modalities, and techniques for treating a wide-range of psychiatric problems, researchers did not standardize treatments to diagnoses or even know whether or not efficacious therapies were being delivered to the patients (Hoagwood, 2000). There also is no standard or widely accepted definition of treatment intensity across studies. For example, dose has been defined as the length of treatment and as the number of mental health visits over a 1-year period. Further, in studies examining the impact of different treatment intensity, the dose varied considerably because it was determined by the patient and therapist, i.e., by when termination occurred (which could have occurred for a variety of therapy and non-therapy reasons). As discussed by Feaster, Newman, and Rice (2003), with treatment dosage being an uncontrolled variable, the dose of therapy that patients received in existing dose-effect research was systematically related to treatment response as opposed

to being independent of treatment response. As a result, outcomes may have been measured at a bias point since termination is most likely to occur when the patient is doing better, which may result in overstatements of pre-post change.

Inconsistencies in the definition, measurement and analysis of "dose" in therapy make it difficult to estimate the expected benefits for selected doses of psychotherapy and draw conclusions about the presence or absence of dose effects for mental health services. Unfortunately, direct comparison studies in which treatment intensity is treated as the independent variable, with all other intervention variables kept constant, have not been reported (Warren, Fey & Yoder, 2007). Research on the dose-effect of therapy needs to be extended to include studies that vary doses of the same psychotherapy treatment (Feaster, Newman, & Rice, 2003). Without studies that clearly define the construct of intensity, control treatment dosage, utilize efficacious treatments, measure change on non-ambiguous and homogeneous criteria, establish assessment schedules prior to the initiation of treatment, and incorporate follow-up assessments to determine long-term outcomes of variable lengths of treatment, questions about whether or not more intensive interventions are more effective will remain unresolved.

Conclusion

Behavior problems in young children may reach clinical severity levels that negatively impact their development and often persist into their formal school years. The literature suggests that the leading PCT programs effectively change parental behaviors and improve young children's behavior problems. However, ongoing evaluation and development of these treatments is necessary in order to increase their benefit. In particular, treatment programs need to attend to key treatment factors (i.e., the length and

dosage of the intervention) as they are likely relevant to interpreting program impact. Questions regarding the role of treatment intensity or the existence of a dose-effect relationship in PCT programs will be best answered by comparing a single treatment at different intensity levels.

The purpose of this study is to explore the effect of increased treatment intensity on outcomes for an established PCT program. This study will apply the examination of treatment intensity to the Parenting Young Children program and extend the focus of intensity research in general to include an analysis of varying doses of the same psychotherapy treatment. Through a controlled comparison of a standard versus intensive treatment program, this study is likely to provide useful information about how PYC may be optimally delivered to maximize outcomes, thereby further interrupting the negative developmental pathway of young children with behavior problems.

Chapter 3 - Methodology

The current study was part of a larger ongoing research project examining the effectiveness of a parent and child therapy program in reducing young children's challenging behaviors; therefore, the data used in this study consisted of archival data. This chapter will describe the, participants, research design, treatment procedures, and measures that were used to determine the impact of differential treatment intensity on child and caregiver outcomes.

Participants

The participants in this study were young children from a large, urban Midwestern city referred to a mental health clinic due to behavioral concerns over a two-year period of time. A total of 235 children were assessed by the clinic during this time and consequently were evaluated for study eligibility. Children were deemed eligible for the study upon meeting the following inclusion criteria: (1) the child was between the ages of one and four years, eleven months at the time of intake; (2) the child had a *T*-score greater than or equal to 60 on the Intensity Scale of the Eyberg Childhood Behavior Inventory (Eyberg & Pincus, 1991); (3) the child did not meet diagnostic criteria for Pervasive Development Disorder or severe cognitive or physical disabilities; and (4) the family received public assistance (i.e., food stamps, WIC, SSI, or W2) or met the criteria for poverty (i.e., family income is at or below 125% of the poverty level based on the Health and Human Services Poverty Guidelines, 2008). Based on this inclusion criteria, 161 of the 235 children qualified for the study and were randomly assigned to one of two treatment levels: a standard treatment group or an intensity treatment group. Group assignment was randomized using a random number table. When children attended all

treatment sessions based on their group assignment (i.e., 8 sessions for the standard group and 12 sessions for the intensity group) and completed the three assessment sessions (i.e., pre-test, post-test, and follow-up), they were entered into the final sample pool until a total of 60 children (30 per group) was reached. Thirteen children (6 standard, 7 intensity) were excluded from the final sample, despite attending all treatment sessions and completing the full assessment protocol, due to their families' inability to adhere to their assigned treatment schedule because of excessive cancellations. There were 47 families from the standard group and 41 families from the intensity group that dropped-out of treatment prematurely. Table 1 shows the demographic data of the final sample by group.

Table 1

Demographic Data for Standard Treatment and Intensity Treatment Groups at Pre-test

	Standard Treatment[a]				Intensity Treatment[b]			
Variable	*M*	*SD*	*n*	%	*M*	*SD*	*n*	%
Age of Child	2.49	.70			2.72	.65		
Gender								
Female			9	30			9	30
Male			21	70			21	70
Race								
African American			21	70			15	50
Latino			3	10			7	23
Caucasian			3	10			3	10
Mixed Ethnicity			3	10			5	17
Psychiatric Diagnosis			27	90			28	93
Developmental Delay			18	60			19	63
Maternal Marital Status								
Married			6	20			7	23
Not Married			24	80			23	77
Years of Parent Education	12.3	1.98			12.1	1.90		
Age of Parent	28.5	8.1			31.9	12.9		
Weeks in Treatment	8.9	1.3			8.7	1.9		

Note: [a]n = 30. [b]n = 30.

The standard treatment group was composed of 21 boys and 9 girls who had a mean age of 2.49 years (SD = .70). The group included 21 African American children, 3 Latino children, 3 Caucasian children and 3 children of mixed ethnicity. Of these 30 children, 27 (90%) met criteria for a psychiatric diagnosis at pre-test with Oppositional Defiant Disorder being the most prevalent diagnosis (n = 23; 85%). The majority of the children (n = 18; 60%) also were identified as having one or more developmental delays. Developmental delay was defined as scoring at least 25% below chronological age (or corrected age for children 2 years of age and younger born premature) in one or more areas of development (e.g., speech, cognition, motor) using the Early Intervention Developmental Profile (Rogers & D'Eugenio, 1981). Most children diagnosed with a developmental delay in the standard group were identified as having a speech delay (n = 16; 89%). The caregivers of the children in the standard treatment group had a mean age of 28.5 years (SD = 8.1) and had completed an average of 12.3 years (SD = 1.98) of education. Six of the caregivers in the standard group were married. Non-marital status for the standard group included caregivers who were single (n = 20), divorced (n = 2), and engaged (n = 1). Participants in the standard treatment group were in treatment for a mean time of 8.9 weeks (SD = 1.3). Time in treatment was defined as the number of weeks taken to complete the required treatment sessions (i.e., time span between session 1 and session 8).

The intensity treatment group consisted of 21 boys and 9 girls with a mean age of 2.72 years (SD = .65). The group was composed of 12 African American children, 7 Latino children, 3 Caucasian children and 5 children of mixed ethnicity. In the intensity group, 28 children (93%) met criteria for a psychiatric diagnosis at pre-test and

Oppositional Defiant Disorder was the primary diagnosis (n = 26; 93%). Again, the majority of the children (n = 19; 63%) were identified as having one or more developmental delays, with a speech delay being the most common (n = 17; 90%). The mean age of caregivers of the children in the intensity treatment group was 31.9 years (SD = 12.9); they had completed an average of 12.1 years (SD = 1.90) of education. In the intensity group, 7 of the caregivers were married; 18 were single; 3 were divorced; 1 was widowed; and 1 was engaged. Intensity treatment group participants completed treatment on average in 8.7 weeks (SD = 1.9).

Independent-group t-Tests were used to identify any statistically significant differences at pre-test between the standard and intensity treatment groups on the continuous demographic variables (e.g., child age, parent education) and chi square tests were used for the categorical variables (e.g., child gender, diagnosis). These initial analyses indicated that there were no statistically significant differences (p >.05) between the two groups based on child age, child gender, child race, the presence of child's psychiatric diagnosis, the presence of child's developmental delay, parental marital status, years of parent education or parent age. It was also determined that there was no significant difference in the length of time spent in treatment between the two groups.

Research Design

Children were assigned randomly to standard and intensive treatment conditions in a two-by-three experimental design with one between-subjects factor (treatment level; standard versus intensity) and one within-subjects factor (time; pre-test, post-test and follow-up). The standard treatment program included eight, once-weekly 2-hour treatment sessions that were scheduled to be provided over 8 consecutive weeks. The

intensive treatment program included eight, twice-weekly and four once-weekly 2-hour treatment sessions that were scheduled to be provided over 8 consecutive weeks. Based on this design, families in the intensity treatment group were scheduled to receive 50% more treatment time than families in the standard treatment group. In addition to the scheduled treatment sessions, all subjects participated in separate pre-test, post-test, and follow-up assessment sessions. Group comparisons were based on assessments including parental self-report instruments and direct observation measures administered at pre-test, post-test, and follow-up.

Procedures

The sample consisted of children who were assessed for behavior problems by the Behavior Clinic and that successfully completed either the standard or intensity treatment program, based on their group assignment.

Behavior Clinic

The Behavior Clinic provides home-based, mental health services for children (age 0-5 years old) with significant behavior problems (Fox, Keller, Grede, & Bartosz, 2007). It is housed within a community-based agency, located in a large, urban city in the Midwest. The agency annually serves over 1,400 children with developmental disabilities, 95% who come from a diverse population of families that live below the poverty level based on guidelines established by the U.S. Department of Health and Human Services (HHS, 2005). The average age of children served by the clinic is 2.57 years (*SD* = 0.66), over 70% of who meet the criteria for a developmental delay; the primary caretakers for these children are usually their biological mothers (84.8%), most of whom are unmarried (64.4%), have less than a high school education (*M* years in

school = 11.67, *SD* = 2.86), and are receiving one or more sources of public assistance (84.4%) (Holtz & Fox, 2009).

Assessment Protocol

Upon referral to the clinic, families completed an intake session which included the collection of demographic and relevant background information (e.g., child age, race, parent marital status) as well as information regarding the referral concerns (see Appendix A for Intake Form). Pre-test assessments were completed at the intake session and included a clinical-diagnostic caregiver interview, a cognitive screening measure, a parent-child interaction assessment, child compliance trials, and parent-report measures (i.e., Early Childhood Behavior Inventory, Parent Behavior Checklist). Clinicians also completed an overall assessment of the quality of the parent-child relationship (i.e., Parent-Child Relationship Scale). During the intake, caregivers of children who met the study's inclusion criteria were asked to participate in the study and signed an informed consent form (see Appendix B). Regardless of whether or not the caregivers agreed to participate in the study, they were offered the full-range of services provided through the Behavior Clinic.

Upon completion of the treatment program, families participated in a termination session where post-test data was collected. During the termination session, caregivers completed the self-report instruments (i.e., Early Childhood Behavior Inventory, Parent Behavior Checklist) and participated in the parent-child interaction assessment with their child. Child compliance trials were also administered. Again, clinicians assessed the quality of the parent-child relationship and conducted a clinical-diagnostic caregiver interview to determine if the child still met the criteria for a psychiatric diagnosis.

Families were contacted 4-6 weeks after termination for completion of a follow-up session which consisted of the repetition of the post-test protocol (i.e., parent self-report measures, parent-child interaction assessment, child compliance, assessment of the parent-child relationship, diagnostic evaluation). At follow-up, any caregivers requesting additional support with their child's behaviors were invited to resume treatment with the Behavior Clinic.

Treatment Program

The Behavior Clinic utilizes an individualized format of the Parenting Young Children Program (PYC) for young children (Fox & Nicholson, 2003), implemented in its entirety in the home with the children and their caregivers. PYC treatment includes four main elements: (a) enriching the parent/child relationship through non-directive play; (b) helping the parents maintain appropriate developmental expectations for their child and learn to thoughtfully interact with their child rather than emotionally overreact to their child's behavior; (c) using techniques such as positive reinforcement, establishing home routines, and giving good instructions to strengthen the child's pro-social behaviors; and (d) employing limit-setting strategies such as redirection, ignoring, response cost, and time-out to reduce the child's challenging behaviors. During treatment sessions, which are approximately 2-hours in length, each treatment strategy is explained to the caregiver and directly modeled by the clinician; parents also practice each strategy with their children and receive immediate feedback from the clinician. Handouts are provided to explain treatment strategies in more detail as are all materials needed to implement the treatment (e.g., edible reinforcers, stickers, door gates for time-out). Individualized treatment plans are written that tailor the procedures to each individual

child and parent, and treatment strategies are fine-tuned as necessary to meet the unique needs of each child, their caregivers, and the home setting. Treatment also includes a parent coaching component where clinicians observe parents during their natural day-to-day interactions with their child and provide immediate feedback to parents as they implement treatment strategies.

Clinicians are master's level therapists and graduate students in counseling and psychology programs who receive practicum and internship course credit for their work at the Behavior Clinic. All clinicians receive extensive training and supervision in four modules: (a) working with diverse families of young children with developmental delays and who live in poverty; (b) clinical skills needed for interacting with children less than five years of age and their caregivers; (c) treatment theory, program content and procedures; and d) assessment administration and data collection. Training includes didactic instruction, watching treatment implementation videotapes, rating parent-child interactions to ensure inter-rater reliability, reading articles, shadowing treatment sessions, and a gradual assumption of the role of a clinician in the field under close supervision. Specific treatment adherence criteria to ensure proper administration of the treatment program is met by all therapists and students prior to their functioning independently as a clinician. Each clinician participates in ongoing supervision (group and individual) to receive assistance on specific issues that arise with families and for feedback on clinician performance as they implement the treatment program. In general, clinicians complete training in a period of three to fourth months, at which time they typically carry a caseload of five to eight families independently. For this study, a total of 18 clinicians provided treatment to the participating families.

Measures

Eyberg Child Behavior Inventory (ECBI)

The ECBI (Eyberg & Pincus, 1999) is a 36-item inventory that measures common behavior problems in children between the ages of 2-16 years. Parents rate the frequency of each behavior (e.g., has temper tantrums, cries easily, physically fights with friends own age) on a scale from 1 (never) to 7 (always), resulting in an Intensity Score (range = 36 - 252). Parents also are asked to identify if each behavior is a current problem (yes or no) resulting in a total problem score (range = 0 - 36). The ECBI has been shown to discriminate between problem and non-problem children, and a *T*-score of 60 has been established the cut-off score for clinical significance (Weis, Lovejoy, & Lundahl, 2004). Evidence of reliability of the scale includes coefficient alphas of .95 for the intensity scale and .93 for the problem scale, test-retest correlation coefficients of .80 for the intensity scale and .85 for the problem scale at 12-week testing intervals, and inter-rater reliabilities of .86 for the intensity scale and .79 for the problem scale. The ECBI has been shown to have good concurrent validity with the Child Behavior Checklist (CBCL; Achenbach, 1991) as the ECBI scales were correlated more significantly with the CBCL's Externalizing scale (problem scale = .85, intensity scale = .86) for preschool-aged children than the Internalizing scale (Boggs, Eyberg, & Reynolds, 1990). It also has been found to be free of social desirability (Robinson & Anderson, 1983).

Parent Behavior Checklist (PBC) - Short Form

The PBC (Fox, 1994) is a 32-item rating scale that was designed to measure the behaviors and expectations of parents of young children between the ages of 1 year and 4 years, 11 months. The PBC consists of three scales that were empirically derived through

factor analyses: Expectations – 12 items that measure parents' developmental expectations (e.g., "My child should be quiet while I'm on the phone"); Discipline – 10 items that assess parental responses to children's problem behaviors (e.g., "I yell at my child for whining"); and Nurturing – 10 items that measure specific parent behaviors that promote a child's psychological growth (e.g., "My child and I play together on the floor"). Items are rated using a 4-point frequency scale (4 = almost always/always, 3 = frequently, 2 = sometimes, and 1 = almost never/never). The range of total scores for each subscale are: Expectations (range = 12 - 48) with higher scores indicating higher parental expectations; Discipline (range =10 - 40) with higher scores indicating more frequent use of verbal and corporal punishment (e.g., yelling, spanking); and Nurturing (range = 10 - 40) with higher scores suggesting more frequent use of positive nurturing activities. All scores are converted into uniform T-scores to allow for comparison across parents of differently aged children. From a representative sample of 1,140 mothers, the following internal consistencies using coefficient alphas were reported: Expectations = .97, Discipline = .91, and Nurturing = .82. Test-retest reliabilities for each of the three subscales were: Expectations = .98, Discipline = .87, and Nurturing = .81. In one study, responses on the PBC were shown not to be influenced by social desirability (Peters & Fox, 1993).

Parent-Child Interaction Assessment

Parents are instructed to play with their child while the clinician observes and rates the quality of the parent and child interaction. Based on the work of Crawley and Spiker (1983), five dimensions of the child's behavior (positive affect, negative affect, interest in play, initiates interactions, socially responsive), and six dimensions of the

parent's behavior (parent directs play, parent lets child direct play, sensitivity to child, expectations for child, discipline – sets appropriate limits, and reciprocity) are rated using a five point frequency scale (1 = never, 2 = seldom, 3 = average, 4 = usually, 5 = always). Separate total scores are computed for the five dimensions of the child's behaviors (the negative affect item scores are reversed for this computation) and the six dimensions of the parent's behaviors (the parent leads item scores are reversed for this computation). Fox et al. (2007) reported alphas of .85 for the total child scores and .83 for the total parent scores. In this study, for approximately 40% of the observations, two clinicians independently completed the play assessment and correlations were computed between the total scores obtained by each clinician to determine inter-rater reliability for child and parent ratings. The resulting inter-rater reliability computations yielded significant correlations for child (.81) and parent (.77) scores.

Child Compliance

Following the parent-child interaction assessment, parents are told to give their child five simple requests so the clinician can assess how well their children listen to them (e.g., pick up the toy, come here). After recording the number of parental requests and the child's compliance (yes or no), a compliance percentage score is computed. For approximately 25% of the observations in this study, two clinicians independently completed the compliance assessment. Correlations were computed between the total number of parental requests and the total number of times the child complied with parent requests, as recorded independently by each clinician, to yield inter-rater reliability coefficients for parent requests and child compliance. Correlations between observers of .99 for the percentage of times the child complied were documented in this study.

Parent-Child Relationship Scale

This scale provides a global assessment of the quality of the parent and child relationship on a scale of 0-100 with five behavioral anchors at 20-point intervals (Fox & Nicholson, 2003). This global score was determined by clinicians after a careful review of all of the assessment findings based on direct observation and the scores from parent self-report measures.

Chapter 4 - Results

Data Analyses

This study had a two-by-three experimental design with one between-subjects factor (treatment level; standard versus intensity) and one within-subjects factor (time; pre-test, post-test and follow-up). The previous chapter described the descriptive data concerning the subjects. The data included demographic information on child participants (i.e., age, gender, race, as well as the presence of a developmental delay and psychiatric diagnosis) and caregiver participants (i.e., age, race and marital status) reported by group (i.e., standard versus intensity). This chapter will describe the results of statistical analyses of the dependent measures (i.e., ECBI, PBC, parent-child interactions, child compliance and parent-child relationship) conducted using the Statistical Package for the Social Sciences (SPSS 17.0 for Windows) program.

The means and standard deviations of each dependent measure for the standard and intensity groups at pre-test, post-test, and follow-up were calculated. Preliminary analyses identified no significant differences ($p > .05$) between the standard or intensity groups on the dependent measures at pre-test. Multivariate tests were used to assess between-group, within-group and interaction effects for the dependent measures through repeated measures multivariate analyses of variance and repeated measures analyses of variance. When significant intervention effects were found, the effected measures were identified and the nature of this significance was determined using standard contrasts. Standardized effect size calculations for the within-group significance results were calculated. Effect sizes were classified as follows: .0 - .1 insubstantial, .1 - .3 small, .3 - .5

moderate, and .5 - 1.0 (Cohen, 1988). Descriptive data for the dependent measures and the results from the data analyses are summarized in Table 2.

Table 2: Means and Standard Deviation Scores by Group at Pre-test, Post-test, and Follow-up

	Standard Treatment						*Intensity Treatment*						*Pre- to Post-Test Contrasts*		
	Pre-test		Post-test		Follow-up		Pre-test		Post-test		Follow-up				
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	df	F	η^2
ECBI															
Intensity	172.53	27.30	138.77	40.28	144.57	47.29	168.43	21.80	135.77	43.50	136.53	43.58	1, 58	42.90[a]	.43
Problem	22.63	5.94	15.30	9.98	15.57	10.81	23.33	7.04	16.80	10.63	15.53	11.53	1, 58	34.98[a]	.38
PBC															
Expectations	30.70	7.95	32.93	9.02	33.70	7.72	29.87	7.28	31.50	6.72	33.37	6.84	1, 58	4.34[b]	.07
Discipline	15.17	4.59	13.37	3.75	14.37	4.41	14.40	3.55	12.57	2.66	12.67	2.89	1, 58	15.67[a]	.21
Nurturing	29.97	5.36	31.57	5.29	31.83	4.95	28.10	5.77	30.77	4.16	30.37	5.13	1, 58	12.43[a]	.18
Child Behavior	17.47	3.99	20.47	2.35	20.40	2.43	17.90	3.26	21.10	2.62	20.70	2.65	1, 58	33.42[a]	.37
Parent Behavior	18.93	3.79	23.67	2.64	22.63	2.92	18.77	3.33	23.77	3.15	23.43	3.70	1, 58	86.41[a]	.60
Compliance	32.79	24.71	57.60	22.65	65.30	29.19	36.77	31.99	55.07	31.09	64.10	30.24	1, 58	29.14[a]	.33
Parent-Child Relationship	53.50	10.92	74.50	10.78	73.50	14.03	53.83	10.80	72.67	12.16	70.33	13.64	1, 58	149.98[a]	.72

Note: n = 30 per group; a = $p < .01$; b = $p < .05$

Research Questions

1. Do scores on the Eyberg Child Behavior Inventory's intensity or problem scales differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

The results of repeated measures multivariate analysis of variance indicated a significant time effect ($F_{1,58} = 13.79$, $p < .01$, $\eta^2 = .19$) with no significant group or interaction effects for the intensity and problem scales of the ECBI. At post-test, children's problem behaviors decreased in intensity ($F_{1,58} = 42.90$, $p < .01$, $\eta^2 = .43$) and were considered less problematic for parents ($F_{1,58} = 34.98$, $p < .01$, $\eta^2 = .38$) than at pre-test in the standard and intensity groups. The size of these intervention effects were moderate and were maintained at follow-up for both the ECBI intensity and problem scales.

2. Do scores on the Parent Behavior Checklist's discipline and nurturing scales differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Repeated measures multivariate analysis of variance results indicated a significant time effect ($F_{1,58} = 6.17$, $p < .01$, $\eta^2 = .10$) with no significant group or interaction effects for the discipline and nurturing scales of the PBC. In both groups, parent's use of verbal and corporal punishment decreased ($F_{1,58} = 15.67$, $p < .01$, $\eta^2 = .21$) and their levels of nurturing increased ($F_{1,58} = 12.43$, $p < .01$, $\eta^2 = .18$) significantly from pre-test to post-test. While the effect sizes were considered small, the intervention effects for parental discipline and nurturing were maintained at follow-up.

3. Do scores on the Parent Behavior Checklist's expectations scale differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Multivariate tests of the repeated measures analysis of variance found no significant group or interaction effect on the PBC expectations scale but revealed a significant time effect ($F_{1,58} = 8.96$, $p < .01$, $\eta^2 = .24$). Following treatment, parental expectations increased ($F_{1,58} = 4.34$, $p < .05$, $\eta^2 = .07$) from pre-test to post-test for the two groups. Yet the effect size obtained was unsubstantial. At follow-up, the intervention effects for parental expectations were maintained.

4. Do child compliance percentages differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Multivariate tests of the repeated measures analysis of variance found no significant group or interaction effect on the percentages of child compliance but indicated a significant time effect ($F_{1,58} = 28.86$, $p < .01$, $\eta^2 = .50$.). For both the standard and intensity groups, children complied more to parental requests ($F_{1,58} = 29.14$, $p < .01$, $\eta^2 = .33$) after completing treatment, which resulted in a moderate effect size. In addition, compliance percentages continued to improve significantly ($F_{1,58} = 5.20$, $p < .05$, $\eta^2 = .08$) from post-test to follow-up for the two groups, although the size of this effect was unsubstantial.

5. Do directly observed child behaviors during parent-child interactions differ significantly between children in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Multivariate tests of the repeated measures analysis of variance found no significant group or interaction effect on child behaviors during parent-child play interactions but revealed a significant time effect ($F_{1,58} = 16.54$, $p < .01$, $\eta^2 = .37$). Children's behaviors while playing with their caregivers improved significantly for the standard and intensity groups from pre-test to post-test ($F_{1,58} = 33.42$, $p < .01$, $\eta^2 = .37$) . The effect size was considered moderate. The intervention effects for child behaviors were maintained at follow-up.

6. Do directly observed parent behaviors during parent-child interactions differ significantly between parents in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Multivariate tests of the repeated measures analysis of variance found no significant interaction effect on parent behaviors during parent-child play interactions but a significant time effect was identified ($F_{1,58} = 42.55$, $p < .01$, $\eta^2 = .60$). Following treatment, parent behaviors in both groups improved significantly during their play interactions with their children ($F_{1,58} = 86.41$, $p < .01$, $\eta^2 = .60$) and resulted in a large effect size. At follow-up, the maintenance of the intervention effects on parent behaviors was documented.

7. Do scores on the Parent-Child Relationship Scale differ significantly in the intensity and the standard treatment conditions when compared at pre-test, post-test and follow-up?

Multivariate tests of the repeated measures analysis of variance found no significant group or interaction effect on the Parent-Child Relationship Scale. A significant time effect ($F_{1,58} = 73.93$, $p < .01$, $\eta^2 = .72$) was found. Clinicians assessed the

parent-child relationship to be significantly improved from pre-test to post-test ($F_{1,58}$ = 149.98, p <.01, η^2 = .72) for the standard and intensity groups. The size of the effect was large and the significant improvements at post-test were maintained at follow-up.

Summary

Multivariate tests found a significant main effect for each of the dependent measures but no significant group or interaction effect (p > .05). Further analyses revealed that this main effect for time was due to significant differences on all dependent measures between pre-test and post-test for both the standard and intensity groups. It was also determined that the significance of this effect was maintained from post-test to follow-up for all but one dependent measure (i.e., child compliance), where the gains from post-test to follow-up reached clinical significance levels.

Chapter 5 – Discussion

The purpose of this study was to investigate the impact of treatment intensity on child and caregiver outcomes in a parent-child therapy (PCT) program for young children with externalizing behavior problems. Participants were 60 low-income children ages one to five years with clinical levels of problem behaviors who completed the Parenting Young Children (PYC) treatment program, with one of two levels of treatment intensity, and a three-phase assessment protocol.

This chapter will discuss the implications of the results presented in Chapter 4. First, the results will be explained in relation to the effectiveness of the PYC treatment program and in connection with existing PCT literature. Next, the findings will be discussed in reference to the role of treatment intensity and their convergence or divergence with previous literature regarding treatment intensity, including the dose-effect model. Limitations of the present study will then be explored and ideas for future research presented. Finally, implications of the present study for the current treatment of behavior problems in young children will be discussed.

The Parenting Young Children Program

The results of the current study demonstrate that the PYC program is a successful intervention for young, low-income children with behavior problems and their caregivers. Participation in the program was associated with positive child and caregiver outcomes that were maintained over time. After treatment, assessment results showed that children and caregivers demonstrated significantly positive change on all dependent measures, as indicated by decreases in child behavior problems and caregiver use of verbal and corporal punishment as discipline and increases in child compliance, caregiver nurturing, positive parent-child interactions and the quality of the parent-child relationship.

First, according to the Eyberg Child Behavior Inventory (ECBI), caregivers reported less intensive and problematic behavior from their children after treatment as compared to before treatment. These findings suggest that caregivers learned strategies (e.g., positive reinforcement, time-out) for responding to their children's challenging behaviors that enabled their children to learn the consequences of their behavior. With caregivers creating an environment that reinforced positive behaviors and disciplined challenging behaviors, children began to realize what behaviors were or were not acceptable. Children could learn the positive or negative consequences associated with their behaviors and adjust their behaviors accordingly (e.g., display positive behaviors in order to get rewarded; decrease undesirable behaviors to avoid discipline). As caregivers experienced increased positive behaviors and decreased challenging behaviors, they began to feel more capable in handling their children and they viewed their children's behaviors as more manageable and less problematic. These findings are representative of previous studies which have consistently found that parents reported significantly less intense and problematic behaviors from their children after participating in PCT programs (Eyberg et al., 2008; Gallager, 2003; Bor et al., 2002; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989). Reductions in child behavior problems and improved child behavior are correlated with consistently reinforcing positive behaviors and responding to negative behaviors with appropriate discipline strategies (e.g., time-out) (Eyberg et al., 2008; Marcus, Swanson, & Vollmer, 2001) which are directly addressed in PCT programs..

Caregivers significantly decreased their use of corporal and verbal punishment and significantly increased their nurturing practices following treatment, according to the

Parent Behavior Checklist (PBC). It appears that caregivers successfully learned alternative strategies (e.g., ignoring, time-out) for disciplining their child through the course of treatment. Cognitive strategies that focused on getting caregivers to stop and think before responding to their children's behaviors likely reduced their levels of emotional reactivity when disciplining which previously may have led to their use of verbal and corporal punishment. The program also emphasized the importance of consistency when using discipline strategies and required caregivers track their use of these strategies when responding to their children. As a result, caregivers could see how their consistent use of appropriate discipline was connected to decreases in their children's challenging behaviors. In conjunction with learning alternative discipline strategies, caregivers increased their nurturing behaviors towards their children. Clinicians regularly addressed the use of nurturing activities (e.g., playing with children daily, establishing bedtime routines) during treatment. Further, the principles of positive reinforcement and the elements of child-led play (two principle components of the PYC program) are based on the effective use of nurturing behaviors (e.g., giving verbal praise, supporting the child's play interests). The result was an increased use of positive parenting behaviors by caregivers that promoted their child's growth. Past research had documented similar increases in positive interactions between parents and children associated with PCT treatment (Fox, Duffy, & Keller, 2006; Nicholson, Janz, & Fox, 1998; Webster-Stratton, 1984). Following interventions focused on parenting skills, parents have relaxed their strict discipline behaviors, lowered their levels of emotional intensity and displayed more nurturing behaviors when interacting with their children

(Conners, Edwards, & Grant, 2006; Pinderhuges, Dodge, Baters, Pettit, & Zelli, 2000; Todd, 2000) .

A significant increase in caregiver expectations of their children after treatment was also documented using the PBC. Throughout treatment, caregivers learned about the developmental level of their child and what expectations were appropriate as a result. This focus seemed to have helped caregivers understand that their children were capable of doing more than they had previously thought and, therefore, caregivers raised their expectations to more appropriately match where their children were developmentally. In expecting their children to demonstrate higher-level skills (e.g., picking up their own toys), caregivers provided more opportunities for their children to not only make choices and do things independently but to be rewarded for positive behaviors. This may have boosted their children's perceived sense of competence and autonomy which likely prevented alternative challenging behaviors (e.g., temper tantrums), which often occur when young children feel frustrated or restricted. Evidence of significant changes in expectations has been found in prior research (Fox & Holtz, 2009; Solis-Camera et al., 2000), and it is becoming apparent that increased expectations are associated with caregiver knowledge of child development and therapeutic interventions that address expectations.

After treatment, children were significantly more compliant to their caregivers' requests. The program taught caregivers the importance of developmentally-appropriate requests, giving ample time for the child to comply, and providing consistent consequences for compliance or non-compliance. Caregivers learned to more consistently respond to noncompliance which enabled children to understand what happens when they

do not listen. They also learned to provide more praise and positive reinforcement when their children listened or behaved in a positive way. As a result, children were more likely to be able to and want to comply with requests. The increased child compliance after treatment documented in this study is similar to that of previous research (Eisenstadt et al., 1993; Fox & Holtz, 2009; Gallager, 2003; Webster-Stratton, 1998) where consistent responses to compliance and/or noncompliance enabled children to learn the consequences of their responses and become more compliant with caregivers' requests.

Child and parent interactions during play changed significantly after treatment as compared to before treatment. The caregivers in this study were taught how to use non-directive play with their children. Skills that helped caregivers creatively compliment their children's play were emphasized in the program and may have led to the observed improvements in parent-child play interactions. After treatment, behavioral changes caregivers displayed included following their children's lead more, increased positive comments, reduced question asking, lower levels of intrusiveness, and increased reciprocity. Changes in children's behaviors that were documented after treatment included more expression of positive affect, less expression of negative affect, increased interest in play, decreased resistance to caregiver initiations, and improved social responsiveness. Improved interactions between parents and children post-intervention are highlighted in past research on PCT programs (Schuhmann et al., 1998; Thomas & Zimmer-Gembeck, 2007; Webster-Stratton, 1998). It appears that when caregivers are taught techniques for interacting positively with their child (e.g., using non-directive play), they alter aspects of how they respond to their child and their children enjoy interactions with them more and behave better as a result.

Finally, the quality of the parent-child relationship improved significantly as measured by Parent-Child Relationship Scale (PCRS). The cyclical nature of parent and child behaviors was discussed in the PYC program and the ways in which treatment strategies (e.g., positive reinforcement, increased nurturing behaviors) could change established behavior cycles were highlighted. With interventions teaching new ways to respond to child behaviors, caregivers learned to break negative behavior cycles and reinforce positive behavior cycles. As a result, both caregivers and children learned alternative ways to interact that appeared to make them more in harmony with one another. As their sense of connectedness grew, the overall relationship between caregivers and children improved. These findings reflect the improved parental responsiveness, increased family functioning, and reduced dysfunctional parenting behaviors and parental stress that have been associated with PCT programs (Schuhmann et al., 1998; McNeil et al., 1999; Webster-Stratton, 1982; Fox, Duffy, & Keller, 2006). It is clear that the quality of the parent-child relationship is influenced by both child and caregiver behaviors. Therefore, as child and parent behaviors were targeted for change during treatment, the dynamic relationship between caregivers and children improved.

Not only do the results from this study support the overall positive findings of previous research on PCT interventions, but they further expand the focus of research on treating behavior problems in high-risk populations. Increasingly, indicators that PCT programs are appropriate for high-risk children are emerging (Bagner & Eyberg, 2007; Holtz, Carrasco, Mattek, & Fox, 2009; Sanders, Mazzucchelli, & Studman, 2004; McIntyre, 2008). This study reasserted that the PYC program is effective with low-income and developmentally-delayed children. Such findings are significant because

poverty is a pervasive risk factor (Qi & Kaiser, 2003). Further, there are indicators that caregivers of children with developmental delays experience higher stress levels (Rodriguez & Murphy, 1997), and poverty may serve as an additional burden that increases the vulnerability of these children. Research shows that young children from low-income households and those with developmental delays are at an increased risk for developing behavior problems (Hudson et al., 2003; Olson, Ceballo, & Park, 2002). Also, the risk factors experienced by families in poverty often make treatment difficult and may lead to poor attendance rates and high levels of attrition (Armbruster & Kazdin, 1994). As such, the identification of effective programs for these high-risk populations is critical.

This individualized version of the PYC program was specifically designed to be sensitive to the issues of poverty. For example, clinicians conducted all of the treatment sessions in each family's home, scheduled visits at times convenient to the caregiver, made reminder phone calls to caregivers before sessions, and adapted treatment programs as necessary to meet the unique needs of the family and the home environment. In addition, the program focused on teaching parents developmentally appropriate strategies to interact with their children through an adjustment of their expectations and modeling of parenting strategies such as play, positive reinforcement, and limit setting. This focus accommodates the individualized-needs of developmentally delayed children particularly well. The results of the current study suggested that the PYC treatment protocol effectively engaged and worked for caregivers, thus enabling them to improve their interactions with their children which led to positive outcomes for these low income children, including those with developmental delays.

The implication that the PYC program is suitable for preschool-aged children is also important to note. Early intervention is critical because childhood behavior problems can emerge very early in a child's development, often soon after a child begins to walk and talk. Research suggests that parents of toddlers experience significant levels of stress and frustration, peaking at age 3 years, due to concerns regarding difficulties with behavior management and discipline (Jenkins, Bax, and Hart, 1980; Richman, Stevenson, & Graham, 1982). As such, these early years are a critical time to intervene because parents may be particularly motivated to participate and engage in treatment. When the challenging behaviors of preschoolers are targeted for change, caregivers can learn strategies that may prevent them from inadvertently reinforcing challenging behaviors and from falling into poor parenting habits, which could be vital to the disruption of early-onset developmental pathways leading to more long-term and difficult behavior problems. The results of this study suggested that treatment in preschool-aged children was effective and therefore should begin as early as possible to prevent the escalation of challenging behaviors to later, more severe, and possibly chronic behavior problems.

In conclusion, this study continued to demonstrate the effectiveness of the PYC program in helping young children with behavior problems and their caregivers. The treatment program assisted parents in decreasing the intensity and problematic nature of their children's behavior problems and their incidence of verbal and corporal punishment. It also positively influenced parental expectations, child and caregiver behaviors during play, and the quality of the overall parent-child relationship. These results were consistent with previous research on the positive impact of PCT programs.

The Role of Treatment Intensity

While these overall positive outcomes are important, a primary focus of the current study was on exploring the role of treatment intensity on child and caregiver outcomes. This study was initiated in light of concerns that the existing PCT literature had failed to address the role of treatment factors in relation to program effectiveness and outcomes. In particular, the current study sought to explore the role of treatment intensity within the context of a well-established PCT treatment, i.e., the PYC program. While there have been PCT studies that implement different levels of treatment, these studies have compared the efficacy of utilizing different treatment formats (e.g., clinician-led versus self-administered treatment) or of adding additional treatment components (e.g., standard treatment versus standard treatment plus adjunct topics addressing maternal depression). This study was the first known attempt to use treatment intensity as the independent variable in an effort to understand its role in PCT treatment outcomes.

Results of statistical analyses from this study indicated that group classification (i.e., standard or intensity) did not affect child and caregiver outcomes differentially. Regardless of their level of treatment intensity, children and caregivers demonstrated significantly positive change on all dependent measures from pre-test to post-test and maintained these gains from post-test to follow-up. This study produced no evidence that receiving a treatment dose greater than 8 sessions resulted in significantly better improvement for participants in the PYC program. The following discussion will focus on possible explanations for this lack of significant differences between groups and implications of these findings in regards to the role of treatment intensity and the existence of a possible dose-effect relationship in PCT treatment.

It is feasible that the difference in treatment dosage employed in this study was not large enough to appropriately assess the impact of increased intensity. For the study, the standard treatment group received 8 treatment sessions (i.e., 16 hours of intervention) and the intensity treatment group received 12 treatment sessions (i.e., 24 hours of intervention). After basing the number of sessions for the standard group on research suggesting that 8 sessions were needed for effective exposure to treatment (Howard, Kopta, Krause, & Orlinsky, 1986), it was estimated that providing 50% more treatment time to the intensity group was a significant enough difference in intervention time. However, the data suggest that this difference was not large enough to produce any measurable effect. Considering many of the assertions that more treatment intensity is correlated with better treatment outcomes have emerged from studies of day treatment programs (Craske et al, 2006; Sun, 2006; Timko & Sempel, 2004), it is possible that this study's intensity level was not intensive enough to significantly impact outcomes. This study's treatment program, consisting of 12 treatment sessions provided in a twice-weekly and then a once-weekly schedule, seems minimal when compared to programs where clients are treated for several hours on a daily basis for weeks or months at a time. As a result, one could contend that the intensity protocol implemented in this study was not truly intensive.

Further, much of the research correlating intensive treatment and positive outcomes is associated with treatment programs for adults with long-standing mental health disorders, particularly eating disorders and substance abuse (Sun, 2006; Timko & Sempel, 2004). As such, it may be that the level of clinical severity of participants in this study was too low to warrant and/or benefit from increased treatment intensity. Intensive

treatment programming is arguably needed for patients with symptoms and diagnoses that are highly severe and pervasive. Although the child participants in this study presented with clinical levels of behavior problems, the overall degree of impairment and symptom severity of the sample was not at a level comparable to adult, day treatment populations. Certainly a range of symptom severity existed within the sample and there were participants with highly pervasive problems relative to their young age. Yet in comparison to adult clinical treatment populations, this study's sample consisted of participants whose presenting problems, by the very nature of their preschool-age, had not become ingrained in their sense of self. In fact, one of the principles of early intervention is that young children are highly amenable to change which makes improved functioning across domains and settings likely, often in a relatively short period of time. It may be that the exploration of treatment intensity is more appropriate when examining acute-care settings and/or highly impaired, clinical treatment populations where the amount of treatment services required for treating mental heath problems is inherently higher.

Another explanation for the lack of significant differences across groups is that time-in-treatment may not be a critical mechanism of change in PCT therapy. While there is merit to the notion that the degree of learning is a function of the time spent learning, the time needed to learn varies depending on the individual. In PCT programs, there are likely caregivers that readily learn treatment techniques, who will implement them within short periods of time and quickly see evidence of their success through positive changes in their children's behavior. Then, there are other caregivers that need more time to learn the same strategies, implement them successfully and witness their positive affects on

behavior. The findings from this study suggest that caregivers can acquire skills that result in positive outcomes in 8 treatment sessions. Yet other studies have documented that PCT programs providing less treatment time have similarly positive effects (Nixon, Sweeney, Erickson & Touyz, 2003). For example, after implementing a condensed version of the Triple P-Positive Parenting Program that consisted of just 4 treatment sessions and a limited number of brief phone consultations, significant improvements in both child and parenting behaviors were found (Hoath & Sanders, 2002; Ireland, Sanders, & Markie-Dadds, 2003). It appears that there is no set formula for time-in-treatment that results in positive treatment gains. Therefore, rather than focusing on establishing any one particular treatment time for the implementation of PCT programs, what may be more critical is that PCT programs have flexible treatment schedules that accommodate the individualized nature of learning.

Finally, the notion of a threshold effect is a plausible explanation for the lack of significant differences in outcomes based on group classification in this study. As suggested in the dose-effect model, some believe that there is a threshold for treatment where a certain magnitude of treatment yields effects and any greater dose does not result in further significant improvement. With research citing 8 treatment sessions as a critical amount of exposure to treatment (Howard, Kopta, Krause, & Orlinsky, 1986), it may be that this study attempted to explore the impact of differential treatment intensity after the treatment threshold was reached, i.e., after the point in time/treatment when most positive gains had been achieved. The significant change demonstrated by the standard treatment group after having participated in 8 treatment sessions (i.e., at the time of termination) may be representative of their having achieved the maximum benefit of treatment. These

findings of no significant difference in improvement between 8 and 12 sessions align with previous research indicating that there is no relationship between dose and improvement after session 8 (Baldwin, Berkeljon, Atkins, Olsen, & Nielsen, 2009). As such, the lack of significant differences between participants receiving 8 versus 12 treatment sessions documented in this study could be viewed as evidence of the negative accelerating curve proposed by the dose-effect model.

In conclusion, this study did not produce results indicating that providing more intensive program services resulted in better outcomes for the participants. Several explanations for the lack of effect of differential treatment intensity of overall outcomes exist. Factors related to the characteristics of the sample (i.e., level of clinical severity) and to the research design (i.e., dosage amounts) may explain why the outcomes between families receiving 8 treatment sessions versus 12 treatment sessions were similar. The results could also be indicators that treatment intensity is not a critical treatment factor or that a treatment threshold was reached by the participants. Overall, the findings of this study suggest that more treatment is not necessarily better and that the specific role of treatment intensity is not yet known.

Limitations

There were a number of limitations to the current study. One of the major challenges was controlling the independent variable. The sample used for this study consisted of children and caregivers whose demographic characteristics (i.e., low-income, undereducated, minority status) placed them at high-risk for poor treatment adherence, response and completion. When one takes into account the amount of time and the number of families necessary to generate the desired sample size, it is evident that the

families in this study had difficulties adhering to the treatment schedule and completing the program. It took two full years and 161 families to be entered into the sample pool in order to end-up with 30 participants in each of the two groups. In total, 88 families did not complete treatment, with a similar number of families in the standard and intensity groups dropping-out. The primary reasons for premature termination with these families were their disengaging from treatment (e.g., no-showed appointments and failures to reschedule) or the clinic losing contact with them (e.g., lack of a working phone and no family response to contact via mail). In addition to these families that left treatment early, there were 13 families (6 standard, 7 intensity) that managed to complete the treatment program but whose number of session cancellations/no shows were so frequent that the integrity of the treatment schedule was compromised. In sum, only about 40% of eligible families managed to remain engaged and complete the treatment program. As such, a self-selection bias may have occurred since the full treatment program was implemented only with those families who agreed to participate and chose to complete treatment. The low treatment completion rates also may mean that the findings from this study are only representative of a certain percentage of high-risk populations, i.e., the most high-functioning, motivated segment.

The assessment protocol employed in this study was another limitation for several reasons. First, despite the inclusion of clinical observational measures, parent self-report measures were an integral part of the study. Even though parent surveys are a primary means for obtain information regarding child behavior, assessments that rely on self-report have inherent limitations including the possibility of misreporting by respondents and social desirability effects (Anastasi & Urbina, 1997). It is possible that caregivers

overstated the severity of their children's problems initially in hopes of securing treatment. As a result, the improvement in children's behavior problems documented at the end of treatment would appear larger than what was actually achieved. Caregivers also may have reported decreases in corporal punishment and increases in the use of appropriate discipline techniques in order to please the clinician or leave the impression that they had followed treatment recommendations. In fact, caregivers in this study may have been at an increased risk for responding such a socially desirable manner as the parent-report measures were administered verbally in order to reduce misunderstandings that can occur with a low-educated caregiver population.

A second limitation of the assessment protocol was that it consisted of a pre-test/post-test design. While pre-test/ post-test comparisons provided data on the total progress children and their caregivers made after participating treatment, limited conclusions could be drawn regarding other possible effects of treatment intensity on the program. The pre-test/post-test design generated data indicating that 12 treatment sessions were not better than 8 treatment sessions, but without session-by-session assessment data there was no way to know if treatment intensity related to positive progress earlier-on in treatment or if the dose-effect model fit the nature of PCT treatment. This study did address many criticisms of dose-effect research by clearly defining dosage and controlling for it as an independent variable and by having a set assessment schedule and using multiple, reliable measures for assessment (Feaster, Newman, & Rice, 2003). However, the study's design resulted in a lack of data about the process of behavioral change and patterns of behavioral change in young children with behavior problems and their caregivers as they relate to the PYC program. With

indications that that overall positive outcomes in this study were not a direct function of the total number of sessions received, questions about the importance of session-by-session change emerge but cannot be answered at this time.

A final limitation of the present study was that a variety of graduate students and clinical staff provided the treatment program to the participants. As highlighted by Emerson, Hastings, & McGill (1994), characteristics of the staff involved in delivering treatment have a powerful effect on programs for clients with behavior problems. For example, the PYC program relies heavily on clinician modeling and parent coaching as a means to teach treatment concepts and strategies. The program is also fully-implemented in the home setting which requires clinicians think well on their feet and have advanced problem solving skills. Even though the clinic's training program addresses such skills and requires clinicians demonstrate competencies in these areas, individual differences between clinicians invariably exist. It is also important to acknowledge that sometimes it is not *what* but *how* something is said or done that makes a difference. The subtle aspects of treatment delivery are difficult to prescribe and the unique ways clinicians use their skills and implement the program cannot be fully controlled. As a result, differences in personality, skill and experience among students and staff may have resulted in the treatment being delivered differently across families, resulting in a differing effect.

Suggestions for Future Research

Considering the limitations of the present study, suggestions for future research can be generated. First, if more treatment is not necessarily better, how much treatment is enough? In general, additional exploration of the role of treatment intensity at various stages treatment would be helpful. Establishing dosage markers could be important when

drawing conclusions about the effectiveness of PCT programs. For example, there could be a minimum dose of PCT treatment that is “necessary” to produce positive gains or a median effective dose (i.e., the point where 50% of clients respond positively to treatment). Establishing such dosage markers may be particularly helpful when working with high-risk populations who frequently terminate treatment prematurely. If there are minimum or median effective doses, treatment could be structured in a way that exposes high-risk clients to the most important treatment concepts and strategies before they drop-out. A lack of such markers may indicate that the individual learning characteristics of clients require flexible treatment schedules and programming in order to maximize outcomes.

Further exploration of issues related to treatment intensity should involve the collection and examination of session-by-session data. Session-by-session data could help answer general questions about how different amounts of treatment may create different outcomes overall. It also will aid in the determination of whether or not the dose-effect model fits PCT programs and provide for a better understanding of the nature and process of change. Child and caregiver change in PCT treatment may follow a negatively-accelerating curve and there may, in fact, be a treatment threshold that is reached by families engaged in these programs. Applying the concepts of reliable change and clinically-significant change may be critical to this next step in the research and may allow for the identification of possible improvement patterns for certain symptoms or diagnoses.

This line of research may also shed more light on whether time in treatment is a key mechanism of change in PCT programs. Some have suggested that the essential step

of identifying the active agents in therapy for children has been missed (Hoagwood, 2000; Jensen, Weersing, Hoagwood, & Goldman, 2005). Indeed, explanations of why PCT treatments work are lacking, and the presumed active therapeutic ingredients in these programs have not been systematically explored. Attention should be paid to determining what treatment components contribute to positive change and what mechanisms of change can be varied to influence outcome. For example, the quality of the therapeutic relationship or the relevancy of the treatment topics could be explored in future studies. In assessing specific change agents, the research may also begin to parcel-out the impact of individual differences amongst therapy staff on client engagement and response to treatment.

Future investigations that could help enhance the PYC program and other PCT treatments would be those attending to the barriers that prevent families from engaging in, adhering to, and completing PCT treatment programs successfully. Recently there has been increased research identifying barriers to treatment and predictors of treatment success. This research should continue as it generates valuable information for understanding the factors that prohibit or promote treatment engagement and success. However, more dynamic information about the ways in which well-recognized barriers (e.g., low-income, single-parent, under-educated, or minority status) mediate change is needed. Barrier research needs to go beyond just identification to determining how to address barriers and moderate their effects. This is especially critical for PCT programs like PYC that target their interventions at clients that have all, or almost all, the known barriers in their demographic profile (e.g., the sample used in this study). Future research should attend to the inter-relationship of different treatment barriers. It also may be

important to widen the scope when exploring the barriers of high-risk families. For example, there are many factors related to living in poverty (e.g., over-crowded homes, a lack of social support, demands of government-aid programs) that should be assessed as they likely get in the way of impoverished families completing and succeeding in treatment.

Implications

Prior research shows that behavior problems in young children are common and that many children are an increased risk for developing behavior problems due to individual (e.g., developmental disability) and environmental factors (e.g., low socio-economic status). In fact, behavior problems in young children often become pervasive and persistent, causing significant distress on caregivers and negative effects on children's short- and long-term social and educational functioning. The results of the current study highlighted the appropriateness of early intervention for children with behavior problems and demonstrated that participation in the PYC program was associated with positive child and caregiver outcomes. Further, the results indicated that the PYC program was able to successfully treat a high-risk treatment population (i.e., low-income families of preschool-aged children, most of whom had a developmental disability).

The results of the current study did not indicate differential effects depending on level of treatment intensity. It may have been the case that more intensive services benefited certain families (e.g., those with caregivers needing longer periods of time to learn the treatment concepts and strategies) and the individual benefits that may have existed were lost when aggregated at a group level. Nevertheless, it appears that

providing more time-in-treatment is not necessarily the way to best help young children with externalizing behavior problems. Until more clarification is gained regarding the relationship between time-in-treatment and outcomes, it may be most appropriate that PCT programs adhere to their standard treatment schedules or, perhaps, consider providing flexible treatment schedules or curriculums in an effort to accommodate the individualized nature of learning.

In this study, it was clear that many factors negatively affected engagement in the PYC program as 60% of families terminated treatment prematurely. Even though this percentage was comparable to drop-out rates previously documented in the literature, it highlights the challenges of engaging and treating high-risk populations. While the PYC program was well-suited to meet the challenges of serving this population due to its in-home, individualized nature, various individual and environmental factors seemed to operate in much the same way in the current study and served as barriers to treatment completion, regardless of the intensity of the treatment experience. Clinicians implementing PCT programs with difficult-to-serve populations need to recognize that there is no single barrier or characteristic that is either necessary or sufficient for lack of engagement. It is also important to understand that barriers will not have an equal impact on all individuals. Considering the dynamic nature of treatment barriers, clinicians are encouraged to develop multiple strategies to accommodate barriers and to acknowledge that better barrier identification and barrier-reduction efforts will be critical to improving PCT programs and better assisting young children with behavior problems and their families.

References

Achenbach, T.M. (1991). *Manual for the Child Behavior Checklist.* Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T.M., Edelbrock, C., & Howell, C.T. (1987). Empirically based assessment of the behavioral/emotional problems of 2- and 3-year old children. *Journal of Abnormal Child Psychology, 15,* 629-650.

Armbruster, P. & Kazdin, A.E. (1994). Attrition in child psychotherapy. In T.H. Ollendick & R.J. Prinz (Eds.), *Advances in Clinical Child Psychology (pp 81-108).* New York: Plenum.

Anastasi, A., & Urbina, S. (1997). Psychological Testing, 7th Ed. New Jersey: Prentice Hall.

Andrade, A.R., Lambert, E.W., & Bickman, L. (2000). Dose effect in child psychotherapy: Outcomes associated with negligible treatment. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 161-168.

Angold, A., Costello, E.J., Burns, B.J., Erkanli, A., & Farmer, E.M. (2000). Effectiveness of nonresidential specialty mental health services for children and adolescents in the "real world." *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 154-160.

Bagner, D.M., & Eyberg, S.M (2007). Parent-child interaction therapy for disruptive behavior in children with mental retardation: A randomized controlled trial. *Journal of Clinical Child and Adolescent Psychology, 36,* 418-429.

Bahl, A.B., Spaulding, S.A., & McNeil, C.B. (1999). Treatment of noncompliance using parent child interaction therapy: A data-driven approach. *Education and Treatment of Children, 22,* 146-156.

Baker, B.L., & Heller, T.L. (1996). Preschool children with externalizing behaviors: Experience of fathers and mothers. *Journal of Abnormal Child Psychology, 24,* 513-532.

Baker, B.L., McIntyre, L.L., Blacher, J., Crnic, K., Edelbrock, C., & Low, C. (2003). Preschool children with and without developmental delay: Behavior problems and parenting stress over time. *Journal of Intellectual Disability Research, 47,* 217-230.

Baldwin, S.A., Berkeljon, A., Atkins, D.C., Olsen, J.A., & Nielsen, S.I. (2009). Rates of change in naturalistic psychotherapy: Contrasting dose-effect and good-enough level models of change. *Journal of Consulting and Clinical Psychology, 77,* 203-211.

Barkham, M., Rees, A., Stiles, W., Shapiro, D., Hardy, G., & Reynolds, S. (1996). Dose-effect relations in time-limited psychotherapy for depression. *Journal of Consulting and Clinical Psychology, 64,* 927-935.

Baumrind (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs, 75,* 43-88.

Boggs, S.R., Eyberg, S.M., Edwards, D.L., Rayfield, A., Jacobs, J., Bagner, D., & Hood, K.K., (2004). Outcomes of parent-child interaction therapy: A comparison of treatment completers and study dropouts one to three years later. *Child and Family Behavior Therapy, 26,* 1-22.

Bor, W., Sanders, M.R., & Markie-Dadds, C. (2002). The effects of the Triple P-Positive parenting program on preschool children with co-occurring disruptive behavior and attentional/hyperactive difficulties. *Journal of Abnormal Child Psychology, 30,* 571-587.

Brenner, V., & Fox, R.A. (1998). Parental discipline and behavior problems in young children. *Journal of Genetic Psychology, 159,* 251-256.

Brenner, V., Nicholson, B.C., & Fox, R.A. (1999). Evaluation of a community-based parenting program with parents of young children. *Early Child Development and Care, 148,* 1-9.

Brinkmeyer, M.Y., & Eyberg, S.M. (2003). Parent-child interaction therapy for oppositional children. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidenced-based psychotherapies for children and adolescents.* New York, NY: Guilford Press.

Bush, K.M., Glenwick, D.S., & Stephens, M.P. (1989). Predictors of psychotherapy outcome for children at a community mental health center. *Journal of Clinical Psychology, 42,* 873-877.

Campbell, S.B. (1990). *Behavior problems in preschool children: Clinical and developmental issues.* New York: Guildford Press.

Campbell, S.B. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry, 36,* 113-149.

Casey, R.J., & Berman, J.S. (1985). The outcome of psychotherapy with children. *Psychological Bulletin, 98,* 388-400.

Chaffin, M. Silovsky, Funderburk, B., Valle, L.A., Brestan, E.V., Balachova, T., Jackson, S., Lensgraf, J., & Bonner, B.L. (2004). Parent-child interaction therapy with physically abusive parents: Efficacy for reducing future abuse reports. *Journal of Consulting and Clinical Psychology, 72,* 500-510.

Chamberlain, P., & Reid, J. (1987). Parent observation and report of child symptoms. *Behavioral Assessment, 9,* 97-109.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd Ed). New Jersey: Lawrence Erlbaum.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Conners, N.A., Edwards, M.C., & Grant, A.S. (2006). An evaluation f parenting class curriculum for parents of young children: Parenting the strong-willed child. *Journal of Child and Family Studies, 16,* 321-330.

Craske, M.G., Roy-Byrne, P., Stein, M.B., Sullivan, G., Hazlett-Stevens, H., Bystritsky, A., & Sherbourne, C. (2006). CBT intensity and outcome for panic disorder in a primary care setting. *Behavior Therapy, 37,* 112-119.

Eisenstadt, T.H., Eyberg, S., McNeil, C.B, Newcomb, K., & Funderburk, B. (1993). Parent-child interaction therapy with behavior problem children: Relative effectiveness of two stages and overall treatment outcome. *Journal of Child Clinical Psychology, 22,* 42-51.

Emerson, E., Hastings, R., & McGill, P. (1994). Values, attitudes, and service ideology. In E. Emerson, P. McGill & J. Mansell (Eds.), *Severe learning disabilities and challenge behaviors* (pp. 209-228). London: Chapman & Hall.

Eyberg, S., & Pincus, D. (1991). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory-Revised: Professional manual.* Lutz, Florida: Psychological Assessment Resources, Inc.

Eyberg, S.M, Nelson, M.M., & Boggs, S.R. (2008). Evidenced-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child and Adolescent Psychology, 37,* 215-237.

Eyberg, S.M., Boggs, S.R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of children with conduct problem behavior and their parents. *Psychopharmacology Bulletin, 31,* 83-91.

Eyberg, S. M., Boggs, S. R., & Rodriguez, C. M. (1992). Relationships between maternal parenting stress and child disruptive behavior. *Child and Family Behavior Therapy, 14,* 1-9.

Eyberg, S., Bessmer, J., Newcomb, K., Edwards, D., & Robinson, R. (1994). *Dyadic Parent-Child Interactions Coding System-II: A manual.* Gainesville, FL: University of Florida, Department of Clinical and Health Psychology, Child Study Lab.

Eyberg, S.M., Funderburk, B.W., Hembree-Kigin, T.L., McNeil, C.B., Querido, J.G., & Hood, K.K. (2001). Parent-child interaction therapy with behavior problem children: One and two year maintenance of treatment effects in the family. *Child & Family Behavior Therapy, 23,* 1-20.

Feaster, D.J., Newman, F.L., & Rice, C. (2003). Longitudinal analysis when the experimenter does not determine when treatment ends: What is dose-response? *Clinical Psychology and Psychotherapy, 10,* 352-360.

Fettes, P.A., & Peters, J.M. (1992). A meta-analysis of group treatments for bulimia nervosa. *International Journal of Eating Disorders, 11,* 97-110.

Fonagy, P., & Target, M. (1994). The efficacy of psychoanalysis for children with disruptive disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 45-55.

Fox, R. A. (1994). *Parent behavior checklist*. Austin, TX: ProEd (Currently available from the author, Marquette University, School of Education, P.O. Box 1881, Milwaukee, WI 53201-1881; Email:robert.fox@marquette.edu).

Fox, R.A., & Holtz, C.A. (2009). Treatment outcomes for toddlers with behavior problems from families in poverty. *Child and Adolescent Mental Health, 14,* 183-189.

Fox, R.A., & Nicholson, B. (2003). *Parenting Young Children: A facilitator's guide.* Longmont, CO: Sopris West.

Fox, R.A., Anderson, R.C., Fox, T.A., & Rodriguez, M.A. (1991). STAR parenting: A model for helping parents effectively deal with behavioral difficulties. *Young Children, 46,* 54-60.

Fox, R.A., Duffy, K.M, & Keller, K.M. (2006). Training community-based professionals to implement an empirically supported parenting program. *Early Child Development and Care, 176,* 19-31.

Fox, R.A., Fox, T.A., & Anderson, R.C. (1991). Measuring the effectiveness of the STAR parenting program with parents of young children. *Psychological Reports, 68,* 35-40.

Fox, R.A., Anderson, R.C., Fox, T.A., & Rodriguez, M.A. (1991). STAR parenting: A model for helping parents effectively deal with behavioral difficulties. *Young Children, 46,* 54-60.

Fox, R. A., Keller, K. M., Grede, P. L., & Bartosz, A. M. (2007). A mental health clinic for toddlers with developmental delays and behavior problems. *Research in Developmental Disabilities, 28,* 119-129.

Gallager, N. (2003). Effects of parent-child interaction therapy on young children with disruptive behavior disorders. *Bridges, 1,* 1-17.

Greene, R.W., & Doyle, A.E. (1999). Toward a transactional conceptualization of oppositional defiant disorder: Implications for assessment and treatment. *Clinical Child and Family Psychology Review, 2,* 129-148.

Gross, D., Fogg, L., Webster-Stratton, C., Garvey, C., Julion, W., & Grady, J. (2003). Parent training of toddlers in day care in low-income urban communities. *Journal of Consulting and Clinical Psychology, 71,* 261-278.

Herschell, A.D., Calzada,E.J., Eyberg, S.M., & McNeil, C.B. (2002). Parent-child interaction therapy: New directions in research. *Cognitive and Behavioral Practice, 9,* 9-16.

Hoagwood, K. (2000). Commentary: The dose effect in children's mental health services. *Journal of the American Academy of Child and Adolescent Psychiatry, 39,* 172-175.

Hoath, F.E., & Sanders, M.R. (2002). A feasibility study of enhanced group Triple P-Positive parenting program for parents of children with attention deficit hyperactivity disorder. *Behaviour Change, 19,* 191-206.

Hollingshead, A.B. (1975). *Four factor index of social status.* Unpublished manuscript. Yale University, New Haven, CT.

Holtz, C.A., & Fox, R.A. (2008). Infant mental health: An emerging field for children with developmental disabilities. In A.F. Rotatori, F.E. Obiakor, & S. Burkhardt (Eds.). *Autism and Developmental Disabilities: Current Practices and Issues.* Bingley, UK: JAI Press.

Holtz, C., Carrasco, J., Mattek, R., & Fox, R. (2009). Toddlers with behavior problems: Treatment outcomes for children with developmental delays. *Child and Family Behavior Therapy, 31,* 292-311.

Hood, K.K., & Eyberg, S.M. (2003). Outcomes of parent-child interaction therapy: Mother's reports on maintenance three to six years after treatment. *Journal of Clinical Child and Adolescent Psychology, 21,* 419-429.

Howard, K.I., Kopta, S.M., Krause, M.S., & Orlinsky, D.E. (1986). The dose-effect relationship in psychotherapy. *American Psychologist, 41,* 159-164.

Hudson, A. M., Matthews, J. M., Gavidia-Payne, S. T., Cameron, C. A., Mildon, R. L., Radler, G. A., & Nankervis, K. L. (2003). Evaluation of an intervention system for parents of children with intellectual disability and challenging behavior. *Journal of Intellectual Disability Research, 47,* 238-249.

Innocenti, M.S., & White, K.R. (1993). Are more intensive early intervention programs more effective? A review of the literature. *Exceptionality, 4,* 31-50.

Ireland, J.L., Sanders, M.R., & Markie-Dadds, C. (2003). The impact of parent training on marital functioning: A comparison of two group versions of the Triple P-Positive parenting program for parents of children with early-onset conduct problems. *Behavioural and Cognitive Psychotherapy, 31,* 127-142.

Jenkins, S., Bax, M., & Hart, H. (1980). Behavior problems in preschool children. *Journal of Child Psychology and Psychiatry, 21,* 5-18.

Jensen, P.S., Weersing, R., Hoagwood, K.E., & Goldman, E. (2005). What is the evidence for evidence-based treatments? A hard look at our soft underbelly. *Mental Health Services Research, 7,* 53-74.

Kazdin, A.E. (1987). *Conduct disorders in childhood and adolescence.* Newbury Park, CA: Sage.

Kazdin, A.E. (1996). Dropping out of child therapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry, 1,* 133-156.

Kazdin, A.E. (2000). Developing a research agenda for child and adolescent psychotherapy. *Archives of General Psychiatry, 57,* 829-837.

Kazdin, A.E., Holland, L., & Crowley, M. (1997). Family experience of barriers to treatment and premature termination from child therapy. *Journal of Consulting and Clinical Psychology, 65,* 453-463.

Keenan, K., & Wakschlag, L.S. (2000). More than the terrible twos: The nature and severity of behavior problems in clinic-referred preschool children. *Journal of Abnormal Child Psychology, 28,* 33-46.

Kellam, S.G., Werthamer-Larsson, L., Lawrence, J., & Brown, C.H. (1991). Developmental epidemiologically based preventive trials: Baseline modeling of early target behaviors and depressive symptoms. *American Journal of Community Psychology, 19,* 563-584.

Koptka, S.M., Howard, K.I., Lowry, J.L., & Beutler, L.E. (1994). Patterns of symptomatic recovery in psychotherapy. *Journal of Consulting and Clinical Psychology, 62,* 1009-1016.

Kordy, H., von Rad, M., & Senf, M. (1988). Time and its relevance for a successful psychotherapy. *Psychotherapy and Psychosomatics, 49,* 212-222.

Lahey, B.B., Loeber, R.L., Quay, H.C., Frick, P.J., & Grimm, J. (1992). Oppositional defiant and conduct disorders: Issues to be resolved for DSM-IV. *Journal of the American Academy of Child and Adolescent Psychiatry, 31,* 539-546.

Lambert, M.J., Hansen, N.B., & Finch, A.E. (2001). Patient-focused research: Using patient outcome data to enhance treatment effects. *Journal of Consulting and Clinical Psychology, 69,* 159-172.

Leung, C., Sanders, M.R., Leung, S., Mak, R., & Lau, J. (2003). An outcome evaluation of the implementation of the Triple P-Positive Parenting Program in Hong Kong. *Family Process, 42,* 531-544.

Lovaas, O.I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55,* 3-9.

Marcus, B.A., Swanson, V., & Vollmer, T.R. (2001). Effects of parent training on parent and child behavior using procedures based on functional analysis. *Behavioral Interventions, 16,* 87-104.

Matson, J.L., & Barrett, R.P. (Eds.) (1993*). Psychopathology in the mentally retarded* (2nd ed.). Boston: Allyn Bacon.

McDiarmid, M. D., & Bagner, D. M. (2005). Parent-child interaction therapy for children with disruptive behavior and developmental disabilities. *Education & Treatment of Children, 28,* 130-141.

Medalia, A., & Richardson, R. (2005). What predicts a good response to cognitive remediation interventions. *Schizophrenia Bulletin, 31,* 942-953.

Mendez, J.L., Fantuzzo, J. & Cicchetti, D. (2002). Profiles of social competence among low-income African American preschool children. *Child Development, 73,* 1085-1101.

McIntyre, L.L. (2008). Parent training for young children with developmental disabilities: Randomized controlled trial. *American Journal of Mental Retardation, 113,* 356-368.

McNeil, C.B., Capage, L.C., Bahl, A., & Blanc, H. (1999). Importance of early intervention for disruptive behavior problems: Comparison of treatment and waitlist-control groups. *Early Education & Development, 10,* 445-454.

McNeil, C.B., Eyberg, S., Eisenstadt, T.H., Newcomb, K., & Funderburk, B. (1991). Parent- child interaction therapy with behavior problem children: Generalization of treatment effects to the school setting. *Journal of Clinical Child Psychology, 20,* 140-151.

Moffitt, T.E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100,* 674-701.

Neilsen, S.L., & McEvoy, M.A. (2004). Functional behavioral assessment in early education settings. *Journal of Early Intervention, 26,* 115-131.

Nicholson, B.C., Brenner, V., & Fox, R.A. (1999). A community-based parenting program with low-income mothers of young children. *Families in Society: The Journal of Contemporary Human Services, 80,* 247-253.

Nicholson, B.C., Janz, P.C., & Fox, R.A. (1998). Evaluating a brief parental-education program for parents of young children. *Psychological Reports, 82,* 1107-1113.

Nicholson, B., Anderson, M., Fox, R., & Brenner, V. (2002). One family at a time: A prevention program for at-risk parents. *Journal of Counseling and Development, 80,* 362-371.

Nixon, D.V. (2001). Changes in hyperactivity and temperament in behaviourally disturbed preschoolers after parent-child interaction therapy (PCIT). *Behaviour Change, 18,* 168-176.

Nixon, R.D, Sweeney, L., Erickson, D.B., & Touyz, S.W. (2003). Parent-child interaction therapy: A comparison of standard abbreviated treatments for oppositional defiant preschoolers. *Journal of Consulting and Clinical Psychology, 71,* 251-260.

Olson, S.L., Ceballo, R., & Park, C. (2002). Early problem behavior among children from low-income, mother-headed families: A multiple risk perspective. *Journal of Clinical Chlid and Adolescent Psychology, 31,* 419-430.

Pinderhuges, E.E., Dodge, K.A., Baters, J.E., Pettit, G.S., and Zelli, A. (2000). Discipline responses: Influences of parents' socioeconomic status, ethnicity, and beliefs about parenting, stress, and cognitive emotional processes. *Journal of Family Psychology, 14,* 380-400.

Pincus, D.B., Eyberg, S.M., & Choate, M.L. (2005). Adapting parent-child interaction therapy for young children with separation anxiety disorder. *Education and Treatment of Children, 28,* 163-181.

Qi, C.H., & Kaiser, A. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education, 23,* 188-216.

Reardon, M.L., Cukrowicz, K.C., Reeves, M.D., & Joiner, T.E. (2002). Duration and regularity of therapy attendance as predictors of treatment outcome in an adult outpatient population. *Psychotherapy Research, 12,* 273-285.

Richman, N., & Graham, P. (1971). A behavioral screening questionnaire for use with three- year-old children. *Journal of Child Psychology and Psychiatry, 12,* 5-13.

Richman, N., Stevenson, J., & Graham, P.J. (1982). *Preschool to school: A behavioral study*. London: Academic Press.

Roberts, C., Mazzucchelli, T., Studman, L., & Sanders, M.R. (2006). Behavioral family intervention for children with developmental disabilities and behavioral problems. *Journal of Clinical Child and Adolescent Psychology, 35,* 180-193.

Rogers, S.J., & D'Eugenio, D.B. (1981). Assessment and Application. Ann Arbor, MI; The University of Michigan Press.

Salzer, M.S., Bickman, L., & Lambert, E.W. (1999). Dose-effect relationship in children's psychotherapy services. *Journal of Consulting and Clinical Psychology, 67,* 228-238.

Sandell, R., Bloomberg, J., & Lazar, A. (2002). Time matters: On temporal interactions in long-term follow-up of long-term psychotherapies. *Psychotherapy Research, 12,* 39-58.

Sanders, M.R. (1999). Triple P-Positive parenting program: Towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clinical Child and Family Psychology Review, 2,* 71-90.

Sanders, M.R., & Plant, K. (1989). Programming for generalization to high and low risk parenting situations in families with oppositional developmentally disabled preschoolers. *Behavior Modification, 13,* 283-305.

Sanders, M.R., Cann, W., & Markie-Dadds, C. (2003). The Triple P-Positive parenting program: A universal population-level approach to the prevention of child abuse. *Child Abuse Review, 12,* 155-171.

Sanders, M.R., Mazzucchelli, T.B., & Studman, L.J. (2004). Stepping Stones Triple P: The theoretical basis and development of an evidenced-based positive parenting program for families with a child who has a disability. *Journal of Intellectual and Developmental Disability, 29,* 265-283.

Sanders, M.R., Markie-Dadds, C., Tully, L.A., & Bor, W. (2000). The Triple P-Positive parenting program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68,* 634-640.

Sanders, M.R., Waugh, L., Tully, L., & Hynes, K. (1996). *The Revised Family Observation Schedule (3rd edition).* Brisbane, Queensland, Australia: Australian Academic Press.

Schuhmann, E.M., Foote, R.C., Eyberg, S.M., Boggs, S.R., & Algina, J. (1998). Efficacy of parent-child interaction therapy: Interim report of a randomized control trial with short-term maintenance. *Journal of Clinical Child Psychology, 27,* 34-45.

Scott, S. (2005). Do parenting programmes for severe child antisocial behaviour work over the longer term, and for whom? One year follow-up of a multi-centre controlled trial. *Behavioural and Cognitive Psychotherapy, 33,* 403-421.

Shapiro, D.A., & Shapiro, D. (1982). Meta-analysis of comparative therapy outcome studies: A replication and refinement. *Psychological Bulletin, 92,* 581-604.

Solis-Camara, R.P., Fox, R.A., & Nicholson, B.C. (2000). Parenting Young Children: Comparison of a psychoeducational program in Mexico and the United States. *Early Child Development and Care, 163,* 115-124.

Strain, P., Steele, P., Ellis, T., & Timm, M. (1982). Long-term effects of oppositional child treatment with mothers as therapists and therapist trainers. *Journal of Applied Behavior Analysis, 15,* 163-169.

Sun, A. (2006). Program factors related to women's substance abuse treatment retention and other outcomes: A review and critique. *Journal of Substance Abuse Treatment, 30,* 1-20.

Thomas, R., & Zimmer-Gembeck, M.J. (2007). Behavioral outcomes of parent-child interaction therapy and Triple P-Positive parenting program: A review and meta-analysis. *Journal of Abnormal Child Psychology, 35,* 475-495.

Timko, C., & Sempel, J.M. (2004). Short-term outcomes of matching dual diagnosis patients' symptom severity to treatment intensity. *Journal of Substance Abuse Treatment, 26,* 209-218.

Todd, T. (2000). Solution-focused strategic parenting of challenging teens. *Family Relations, 49,* 165-169.

Tonge, B.J. (1999). Psychopathology of children with developmental disabilities. In: N. Bouras (Ed.), *Psychiatric and behavioural disorders in developmental disabilities and mental retardation.* Great Britain: Cambridge University Press.

Tucker, S., Gross, D., Fogg, L., Delaney, K., & Lapporte, R. (1998). The long-term efficacy of a behavioral parent training intervention for families with 2-year-olds. *Research in Nursing & Health, 21,* 199-210.

Warren, S.F., Fey, M.E., & Yoder, P.J. (2007). Differential treatment intensity research: A missing link to creating optimally effective communication interventions. *Mental Retardation and Developmental Disabilities Research Reviews, 13,* 70-77.

Webster-Stratton, C. (1981). Modification of mothers' behaviors and attitudes through videotape modeling group discussion program. *Behavior Therapy, 12,* 634-642.

Webster-Stratton, C. (1982). The long-term effects of a videotape modeling parent-training program: Comparison of immediate and 1-year follow-up results. *Behavior Therapy, 13,* 702-714.

Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology, 52,* 666-678.

Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: Strengthening parenting competencies. *Journal of Consulting and Clinical Psychology, 66, 715*-730.

Webster-Stratton, C. (1990). Enhancing the effectiveness of self-administered videotape parent training for families with conduct-problem children. *Journal of Abnormal Child Psychology, 18,* 479-492.

Webster-Stratton, C. (1992). *The Incredible Years: A trouble shooting guide for parents of children age 3-8 years.* Toronto: Umbrella Press.

Webster-Stratton, C., Hollinsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs

for families with conduct-problem children. *Journal of Consulting and Clinical Psychology, 57,* 550-553.

Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. Journal of Consulting and Clinical Psychology, 65(1), 93-109.

Webster-Stratton, C., & Reid, M. (2003). The Incredible Years parents, teachers, and children training series: A multifaceted treatment approach for young children with conduct problems. In A.E. Kazdin & J.R. Weisz (Eds.), *Evidenced-based psychotherapies for children and adolescents* (pp. 224-240). New York: Guilford.

Webster-Stratton,C., Reid, M.J., & Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in head start. *Journal of Clinical Child Psychology, 30,* 283-302.

Webster-Stratton, C., & Taylor, T. (2001). Nipping early risk factors in the bud: Preventing substance abuse, delinquency, and violence in adolescence through interventions targeted at young children (0-8 years). *Prevention Science, 2,* 165-192.

Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropout. *Professional Psychology: Research and Practice, 24,* 190-195.

Appendix A

MARQUETTE UNIVERSITY
PARENT PERMISSION FORM

Behavior Clinic: Treatment Intensity Project
Dr. Robert Fox, Professor of Counseling and Educational Psychology and
Director of the Behavior Clinic at Penfield Children's Center

Your child has been invited to participate in this research study. Before you agree to allow your child to participate, it is important that you read and understand the following information. Participation is completely voluntary. Please ask questions about anything you do not understand before deciding whether or not to give permission for your child to participate.

PURPOSE: I understand that the purpose of this research study is to determine if receiving less or more treatment sessions (8 or 12) will help my child's behavior. I understand that my child will be one of approximately 100 participants in this research study and that we have a 50% chance of receiving 8 or 12 treatment sessions.

PROCEDURES: I clearly understand the following procedures will be part of this project: (1) Intake Session- I will be participating in an interview with my child, observed interacting with my child, completing surveys, answering interview questions, and having my child's development and behavior assessed. These procedures will require two to three hours to complete; (2) Treatment Sessions- I will meet with clinic staff for 8 or 12 two-hour treatment sessions in my home. I will be expected to implement a new form of play with my child and a treatment program including strategies designed to improve my child's behavior that will require up to one hour of my time each day in my home. (3) Post-test Session- After the treatment sessions are over, I will meet with a staff member for two hours to repeat the intake procedures and a treatment satisfaction form. (4) Follow-up Session- About 4-6 weeks after the post-test session, I will meet again with clinic staff for two hours to repeat the post-test session. At that time I may request additional services from the Behavior Clinic.

DURATION: I understand that my child's participation will consist of one intake session, either 8 or 12 two-hour treatment sessions, one post-test session and one follow-up session. The entire time my child is involved in this project will be 14-16 weeks.

RISKS: I understand the risks associate from my participation in this study including: the ongoing parenting stress I may experience in managing my child's behavior and the emotional discomfort my child may experiences as I implement new procedures to improve his/her behavior.

BENEFITS: I understand the benefits associated with my participation in this study including: I will have an improved understanding of my child and his/her behavior; I will learn effective strategies to better manage my child's behavior; I will have ongoing professional support as I work to improve my child's behavior; and I will observe improvement in my child's behavior. I also understand that my participation in this stay may assist other parents who are experiencing similar behavior problems with their young children.

CONFIDENTIALITY: I understand that all information my child and I reveal in this study will be kept confidential. All of my child's data will be assigned an arbitrary code number rather than using my child's name or other information that could identify my child as an individual. When the results of the study are published, my child will not be identified by name. The data for this study will be kept in a locked file cabinet at Penfield Children's Center. I understand that the data will be destroyed by shredding paper documents and deleting electronic files five years after the completion of the study. I understand that the research records may be inspected by Marquette University Institutional Review Board or its designees and (as allowable by law) state and federal agencies. I understand that the clinic staff are mandated reporters and are required by law to report child abuse and neglect to authorities.

COMPENSATION: I understand that I will receive a$5 gift certificate for turning in a completed Behavior Plan at each treatment session and a $5 gift certificate for participating in the post-test session and the follow-up session.

VOLUNTARY NATURE OF PARTICIPATION: I understand that participating in this study is completely voluntary and that my child may withdraw from the study and stop participating at ay time without penalty or loss of benefits to which my child is otherwise entitled. If I chose to withdraw from this study, my child's research records will be destroyed. I also understand that if I choose not to participate in the Behavior Clinic, I will be referred to alternative family services in the community.

CONTACT INFORMATION: If I have questions about this research project, I can contact Dr. Robert Fox at 414-345-6351 or email him at robert.fox@marquette.edu. If I have questions or concerns about my child's rights as a research participant, I can contact Marquette University's Office of Research Compliance at 414-288-7570.

I HAVE HAD THE OPPORTUNITY TO READ THIS PARENT PERMISSION FORM, ASK QUESTIONS ABOUT THE RESEARCH PROJECT AND AM PREPARED TO GIVE MY PERMISSION FOR MY CHILD TO PARTICIPATE IN THIS PROJECT.

Please choose and check the appropriate consent option box, add the date of consent, and obtain the appropriate signatures.

☐ Option A I, the person signing below, understand the above explanations. On this basis I consent to participate voluntarily in the Behavior Clinic Research Study.

_____ _____
Parent's/Legal Guardian's Signature(s) Date

_____ _____
Parent's Legal Guardian's Name(s) Child's Name

_____ _____
Researcher's Signature Date

☐ Option B I, the person signing below, understand the above explanations. On this basis I do not consent to participate in the Behavior Clinic Research Study but would like to voluntarily participate in the full range of services offered by the Behavior Clinic.

_____ _____
Parent's/Legal Guardian's Signature(s) Date

_____ _____
Parent's Legal Guardian's Name(s) Child's Name

_____ _____
Researcher's Signature Date

Appendix B

Intake Form

Today's Date: _____ **Intake Clinician:** _____

PCC Service Coordinator: _____ **Teacher:** _____

Caregiver(s) at Intake: _____

Relationship: ___ mother ___ father other: _____

Referral Information

Name: _____**Likes to be called:** _____

Address: _____

Phone Number(s): _____

Age: _____ **Date of Birth:** _____**Gender**: ___ M ___ F **Lives with:** _____

SS# _____ **Physician:** _____**Insurance:** _____

Race: ___ African Amer ___ Latino ___ White ___ Mixed Other: _____

Referred by: _____**Position:** _____

Have you talked to any other professional about your concerns? (Describe)

_____

_____

Has your child ever been assessed for Developmental Delays? _____ No _____Yes

Date of Evaluation: _____ Agency: _____ Age at Evaluation: __ mos

Cognitive Delay: __ No __Yes **Language Delay:** __ No __Yes **Motor Delay:** __ No __Yes

Type, Frequency, and Site of Present Therapy Services: _____

_____

Does your child attend school or daycare (include name, days, and times): _____

_____

Family Information

Family Receives Public Assistance: __ yes __ no (e.g., medical assistance, SSI, food stamps)

Primary Caretaker

Name: _____ **Age:** _____

Relationship to child: ___ mother ___ father other: _____

Race: ___ African Amer ___ Latino ___ White ___ Mixed Other: _____

Education (highest grade completed)**:** 6 7 8 9 10 11 12 13 14 15 16 Post-College

Marital Status: __ Married __ Single __ Divorced __ Widowed __ Separated ___ Engaged

Employed: ____no ___yes job: _____ hours/week: _____

Health: _____good _____problem: _____

_____

Secondary Caretaker

Name: _____

Relationship to child: ___ mother ___ father other: _____

Employed: ____no ___yes job: _____ hours/week: _____

Health: _____good _____problem: _____

_____

Level of Involvement with Child: _____

Other Caretakers

Name: _____ **Relationship to child:** _____

Level of Involvement with Child: _____

Name: _____ **Relationship to child:** _____

Level of Involvement with Child: _____

What other family members may be involved in treatment? _____

_____

Other Family Members Living in the Home (Code: M=male, F=female; B=brother, S=sister, SB=stepbrother, SS=stepsister, C=cousin, GM=grandmother, GF=grandfather, A=aunt, U=uncle)

First Name	Gender	Relationship	Age	Health/Other Issues

Others Living in Home: _____

Are there any significant physical health issues in your family? _____

_____

Is there any history of the following mental health issues in your family (Check all that apply):

___ Depression, Who?_____ ___Anxiety, Who?_____

___ADHD, Who?_____ ___ Alcoholism, Who?_____

___Drug Abuse, Who?_____ ___Other, Who?_____

Child Information

Child's Health History

Birth weight: _____ Full Term (38-40 wks): __ yes __ no If no, weeks gestation: _____

Drug/Alcohol use during pregnancy: _____

Delivery Complications: _____

Past Health Problems: _____

Current Primary Health Concern: _____

Current Secondary Health Concern: _____

Has child's hearing been formally tested? ____ No ____ Yes Concerns? ____ No ____ Yes

Has child's vision been formally tested? ____ No ____ Yes Concerns? ____ No ____ Yes

Other Current Health Concerns: _____

Medications: _____

Does child have any food allergies? ___ No ___ Yes: List _____

Is your child a danger to him/herself or others at this time? _____

Has your child ever witnessed or been the victim of trauma (e.g., physical abuse/neglect, witness to crime)?

_____

Child's Daily Routine

Eating (Good/Picky Eater; # Meals/Snacks/ Mealtimes; Sugar/Caffeine): _____

_____

Favorite Foods and Treats: _____

Sleeping Bedtime: _____Wakes Up _____ Nap: Yes No Total Daily Nap Time _____

Where and with Whom Does Child Sleep: _____

Bedtime Routine: _____

Bedtime Problems: _____

Toileting: Toilet Trained? Yes No Wears: Diapers Pull Ups Underwear

Knows when wet/soiled? Yes No Sits on toilet/potty chair? Yes No

Stays dry 2-3 hours? Yes No

Parent Plan: _____

Social/Emotional Characteristics: _____

_____

Child Strengths: _____

_____

Daily household routines: _____

_____

Activity Level: ___ high ___ normal ___ low Describe: _____

_____

Occupies Self at Home: _____

_____

How Caregiver Spends Time with Child: _____

_____

Referral Concerns

Challenging Behavior 1: _____

How long has it been occurring? _____

How often does it occur? _____How long does the behavior last? _____

Where does it occur? ___ home ___ school ___shopping ___ visits ___ other: _____

Antecedents? _____

How do you respond? _____

How do others respond? _____

Why do you think your child does this behavior? _____

_____

Challenging Behavior 2: _____

How long has it been occurring? _____

How often does it occur? _____How long does the behavior last? _____

Where does it occur? ___ home ___ school ___shopping ___ visits ___ other: _____

Antecedents? _____

How do you respond? _____

How do others respond? _____

Why do you think your child does this behavior? _____

Are you parenting your children like you were raised? How are you different/ similar to your parents?

_____

_____

_____

_____

Introduction to Treatment Program

We have found that changing young children's behavior takes time and a lot of hard work by a parent. The good news is that young children can change quicker now than when they get older. How much time do you have to work with us to change your child's behavior?

Appendix C

Parent-Child Interaction Assessment

Child's Name: _____ **Date: _____**

I. Initial Play with Clinician

Child Approach to Clinician: ___ Yes, right away ___ Yes, with delay ____ No

II. Parent and Child Interaction

Child Ratings		**Reliability Check**
1. Positive Affect	1 2 3 4 5	1 2 3 4 5
2. Negative Affect	1 2 3 4 5	1 2 3 4 5
3. Interest in Play	1 2 3 4 5	1 2 3 4 5
4. Initiates Interactions	1 2 3 4 5	1 2 3 4 5
5. Socially Responsive	1 2 3 4 5	1 2 3 4 5
Parent Ratings		
6. Parent Leads	1 2 3 4 5	1 2 3 4 5
7. Child Leads	1 2 3 4 5	1 2 3 4 5
8. Sensitivity	1 2 3 4 5	1 2 3 4 5
9. Expectations	1 2 3 4 5	1 2 3 4 5
10. Limit Setting	1 2 3 4 5	1 2 3 4 5
Child and Parent Ratings		
11. Reciprocity	1 2 3 4 5	1 2 3 4 5

III. Child Compliance

Instructions: "Now we want to see how well your child listens. I am going to tell you something to have your child do for you. After he/she does what you want, I will give you some more things to ask him/her to do (**Note:** Do not record a comply if the parent used a physical prompt).

			Reliability Check	
	Requests	Complies	Requests	Complies
1. Come here	_____	_____	_____	_____
2. Pick up the toy	_____	_____	_____	_____
3. Give me the toy	_____	_____	_____	_____
4. Sit in the chair	_____	_____	_____	_____
5. Stand up	_____	_____	_____	_____
% complies:	_____ (# complies/# requests X 100)		**% complies:**	_____

6. Parent got child's attention (used name): ___ seldom/never ___ sometimes ___frequently/always
7. Parent praised child's compliance: ___ seldom/never ___ sometimes ___ frequently/always

Appendix D

Summary of Treatment Content by Session

	Standard Treatment	Intensity Treatment
Session 1	Interactive nature of the caregiver/ child relationship Non-directive play Positive and negative behavior cycles STAR "Stop" and "Think" principles and strategies	Interactive nature of the caregiver/ child relationship Non-directive play Positive and negative behavior cycles STAR "Stop" and "Think" principles and strategies
Session 2	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Non-directive play Positive reinforcement Ignoring negative behavior Giving clear instructions	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Non-directive play Positive reinforcement Ignoring negative behavior Giving clear instructions
Session 3	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Child Development Caregiver expectations STAR "Ask" principles and strategies	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Child Development Caregiver expectations STAR "Ask" principles and strategies
Session 4	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Age-appropriate discipline strategies STAR "Respond" principles and strategies	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Age-appropriate discipline strategies STAR "Respond" principles and strategies
Session 5	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Nurturing behaviors Preventing negative behaviors Parent coaching	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Nurturing behaviors Preventing negative behaviors Parent coaching
Sessions 6 - 8	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Parent coaching	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Parent coaching
Sessions 9 - 12	N/A	Treatment content and caregiver implementation review Implementation feedback and strategy individualization Parent coaching

Please note: All sessions include clinician modeling of new treatment strategies and time for parents to practice these strategies and receive immediate feedback from clinicians.