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The Relationship Between Parenting Stress, Attendance, and Attrition in a Group-Based Parent Management Training Program

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The Relationship Between Parenting Stress, Attendance, and Attrition in a Group-Based Parent Management Training Program

by

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Dedication

This work is dedicated to my parents, David and Maria Rubio. I love you both so much. I am so grateful for all the sacrifices you two have made so that my sisters and I could thrive. You showed me what it means to work hard and fight for your goals. I am sure that growing up, I caused you both a great deal of parenting stress. However, you encouraged, supported, and loved me through it all. You two are the best parents in the world and I hope to continue making you proud. Thank you for always being there when I needed you.

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Abstract

Disruptive behaviors rate among the most common referral concern for young children to mental health clinics (Kazdin, 2003). The preferred treatment for child behavior problems is parent management training (PMT; Matthys & Lochman, 2017). Raising a child with externalizing behaviors is associated with high levels of parenting stress, which can interfere with treatment engagement (Deater-Deckard, 2004). One negative outcome that has been associated with high levels of parenting stress is dropping out from treatment (Kazdin et al., 1997). Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS; Agazzi, Childres, & Armstrong, 2017) is a PMT program that has experienced participant attendance and attrition issues. HOT DOCS is a six session, group-based parent management training program that teaches caregivers basic behavioral and problem-solving principles. HOT DOCS is intended for families experiencing clinically and non-clinically significant levels of disruptive behaviors. The purpose of the current study was to examine the predictive value of pretreatment parenting stress scores on treatment attendance and completion in the HOT DOCS program. The current study aimed to examine the proportion of attrition from HOT DOCS. The current study utilized archival data from adults who participated in HOT DOCS between October 2018 and September 2020. A total of 235 caregivers were used for analysis. Parenting stress data were collected using the DOCS Parenting Stress Measure (DOCS PSM). The DOCS PSM was adapted by a team at the University of Massachusetts Amherst from the Autism Parenting Stress Index (Silva & Schalock, 2011). Attendance data were collected at the beginning of each class session. Participants were categorized into program completers and dropouts. Regression

analyses were used to determine the relationship between pretreatment parenting stress scores and completion of HOT DOCS. Results of analyses revealed pretreatment parenting stress was not a significant predictor of program completion or attendance. There was a significant reduction in parenting stress for those who completed the program. Contributions of the current study included being one of the first studies to provide attrition data for classes using HOT DOCS 4th Edition (Agazzi et al., 2017). The current study also provided validity data for the parenting stress measure used by the HOT DOCS program and contributed to the literature exploring the relationship between parenting stress and attrition in parent management training programs.

Chapter One:

Introduction

Problem Statement

Disruptive behaviors are the number one referral concern for young children to mental health clinics (Kazdin, 2003). Disorders that include disruptive and challenging behaviors include Attention-Deficit/Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Autism Spectrum Disorder (ASD). Additionally, disorders such as depression, anxiety, and trauma can present as challenging behaviors in young children. The Center for Disease Control and Prevention (CDC, 2018) estimates that one out of seven children ages two to eight years in the United States has a diagnosable mental, behavioral, or developmental disorder. Behavioral problems have been associated with a variety of negative outcomes for youths including academic problems and disruptions in family and social relationships (Bradshaw et al., 2010; Moilanen, Shaw, & Maxwell, 2010).

Raising a child with behavioral problems also can have negative effects on parents. Parenting a child with externalizing behaviors can lead to high levels of parenting stress (Deater-Deckard, 2004). Parenting stress is defined as adverse physiological and psychological reactions that occur when trying to meet the demands of parenting (Deater-Deckard, 2004). When the demands of parenting exceed the perceived resources needed to meet those demands, parenting stress is more likely to occur. Parenting stress is correlated with low parent satisfaction, low

parental wellbeing, depression, use of negative parenting styles, few parent-child interactions, negative parent child interactions, and behavioral and emotional problems in children.

The preferred treatment for child behavior problems is parent management training (PMT; Matthys & Lochman, 2017). Parent management training is a psychotherapeutic approach that teaches parents positive behavioral skills with the goal of decreasing challenging behaviors in children. Behavioral parent training can be delivered in individual or group format. Many behavioral parent training programs are based on operant conditioning and social learning theories (Kazdin, 2005). Behavioral parent training has proven effective in reducing challenging behaviors in children and adolescents (McCart, Priester, Davies, & Azen, 2006).

The benefits of treatment are dependent on the amount of engagement in treatment by caregivers (Nock & Ferriter, 2005). Treatment attendance, along with adherence and cognitions, make up treatment engagement (Becker et al., 2015; Staudt, 2007). Attendance includes enrollment of eligible participants in treatment, the rate at which eligible participants attend treatment once enrolled, and completion of treatment. Treatment adherence refers to the level of compliance with treatment components (e.g., completion of homework between sessions and participation in session activities like role-play). Treatment cognitions are comprised of the participant's expectations of treatment outcomes, therapeutic alliance, and agreement with treatment rationale. Although treatment engagement in behavioral parent training remains understudied, there is evidence that indicates poorer outcomes for children and parent with less engagement in treatment (Becker et al., 2015; Staudt, 2007).

Although parent management training has been shown to be effective, there are high rates of attrition in these programs. A review of participant engagement in behavioral parent training programs revealed that 25% of participants identified as appropriate for treatment dropped out

before treatment began (Chacko et al., 2016). Among those that started treatment, 26% dropped out before treatment was completed (Chacko et al., 2016). As attendance makes up one-third of treatment engagement (Becker et al., 2015; Staudt, 2007) and parents that are more engaged in treatment have better outcomes (Becker et al., 2015; Staudt, 2007), it is important to study factors that can affect treatment attendance. One program that has experienced attendance and attrition issues is Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS; Agazzi, Childres, & Armstrong, 2017).

Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS; Agazzi, Childres, & Armstrong, 2017) is a six session, group-based PMT that teaches parents basic behavioral and problem-solving principles. HOT DOCS is designed for children ages 5 and younger with disruptive behaviors. Although designed for families experiencing disruptive behaviors, HOT DOCS serves all caregivers in the community interested in learning parenting skills. The disruptive behaviors experienced by families do not need to be at clinically significant levels for them to participate in the program. The overall goal of HOT DOCS is to teach caregivers to determine the function of behaviors in order to problem-solve appropriate solutions. Mealtime behaviors, bedtime routines, and compliance are examples of topics covered in HOT DOCS. Many research studies have been conducted demonstrating the effectiveness of HOT DOCS in reducing disruptive behaviors (Armstrong, Hornbeck, Beam, Mack, & Popkave, 2006; Childres, Agazzi, & Armstrong, 2011; Williams, Armstrong, Agazzi, & Bradley-Klug, 2010). HOT DOCS, like many other PMT programs, suffers from attrition and attendance problems. One study found that the mean number of sessions attended was 4.46 (out of 6; Ogg et al., 2014). When factors that predict attrition and attendance have been examined, only diagnosis status of the child has emerged as a possible predictive variable (Hoffmann

Leedy, 2017; Ogg et al., 2014; Patenaude, 2011). Thus, highlighting the need for more research to identify malleable variables that predict dropout from HOT DOCS.

Theoretical Framework

The current study utilized Kazdin's barriers-to-treatment model, which describes how barriers to treatment affect treatment attendance (Kazdin et al., 1997). This model posits that in order for children and families to receive the maximum benefits of treatment, they must be present and engaged in treatment. However, barriers outside of treatment prevent some families from attending. Kazdin and colleagues identified four types of barriers to treatment: (1) stressors and obstacles that compete with treatment (e.g., partner refusal to attend, demands and problems of other children), (2) treatment demands and issues (e.g., clarity or length of treatment), (3) perceived relevance of treatment (e.g., parent's expectations, parent's view of the importance of treatment), and (4) relationship with the therapist (e.g., alliance and bond with the therapist). The more barriers perceived by families, the less likely the family will be to complete the program.

The current study focused on the first component of the barriers-to-treatment model, stressors and obstacles that compete with treatment. In particular, the current study focused on parenting stress. Parenting stress can influence involvement with treatment. Distressed parents are more likely to miss appointments (Calam et al, 2002). Additionally, parenting stress can interfere with learning the content of treatments because stressed parents may not have the attention, motivation, and cognitive resources needed to learn new skills (Deater-Deckard, 2004). Although being put on a waitlist for treatment was the most significant predictor of dropout, high levels of parent stress have also been found to be associated with treatment attrition (Werba et al., 2006). Based on this theoretical framework, differences in parental stress levels before

beginning treatment should have an influence on treatment attendance and attrition for caregivers participating in the HOT DOCS program.

Research Questions

Based on the empirical research to date related to parenting stress, treatment attendance, and treatment attrition, as well as the theoretical underpinning related to parental stress, the following research questions were developed for the current study:

1. What proportion of HOT DOCS participants drop out after attending at least one class?
2. Is there a change in parenting stress for those who complete the HOT DOCS course?
3. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and completion of HOT DOCS?
4. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and number of HOT DOCS classes attended?

Summary and Contributions to the Literature

The main purpose of the current study was to examine the predictive value of pretreatment parenting stress scores on treatment attendance and completion in the HOT DOCS program. In meeting that purpose, the current study also aimed to examine the proportion attrition from HOT DOCS. Finally, HOT DOCS' effects on parenting stress was investigated. The current study was part of larger study involving HOT DOCS and utilized preexisting data.

The current study contributed to the HOT DOCS literature and the PMT literature as a whole. First, the current study was one of the first studies to examine the HOT DOCS 4th Edition (Agazzi et al., 2017). Changes have been made to the HOT DOCS program which make the program more accessible for the community. These changes include making class

times shorter by half an hour, providing more times and locations for the class, and lowering the cost of registration for participants. Telehealth delivery services also are a new option for participants. The current study contributed to the validity of a parenting stress measure adapted specifically for use in the HOT DOCS program. Third, this study contributed to the literature on attendance and attrition in both the HOT DOCS program and PMT programs.

Key Terms

Parent Management Training. Parent management training (PMT), also known as behavioral parent training, is an umbrella term for intervention programs and models that teach caregivers to use behavioral strategies to decrease disruptive behaviors and increase positive parenting practices (Kazdin, 2005; Matthys & Lochman, 2017).

Disruptive Behaviors. Disruptive behaviors are defined as significant and repeated engagement in aggressive acts towards others and/or little regard for complying with directions, requests, and expectations from parents and other authority figures (Kazdin, 2005).

Parenting Stress. Parenting stress is defined as the adverse psychological and physiological reactions that occur when attempting to meet the demands of parenting. Parenting stress occurs when the demands of parenting outweigh the perceived resources available to meet those demands (Deater-Deckard, 2004).

Attendance. Attendance is defined as having the participant present at the agreed upon treatment setting for scheduled treatment appointments (Nock & Ferriter, 2005).

Attrition/Dropout. Attrition, or dropout refers to the participant's decision to end treatment before completing the agreed upon treatment program or against the recommendation

of the provider. Attrition can occur before treatment begins or after participants attend at least one session, but do not complete the full treatment schedule (Chacko et al., 2016).

Helping Our Toddlers, Developing Our Children's Skills. Helping Our Toddlers, Developing Our Children's Skills 4th Edition (HOT DOCS; Agazzi, Childres, & Armstrong, 2017). HOT DOCS is a group-based parent management training program developed at a large urban university in the southeastern United States. The main focus of HOT DOCS is to teach participants to discover the function of children's behaviors by looking at the behaviors, antecedents, and consequences with the goal of identifying and teaching replacement behaviors to children to help them meet the functions of their behaviors in an appropriate manner. HOT DOCS is designed caregivers with children under the age of five years and professionals who work with children five years and under.

Chapter Two:

Literature Review

The following chapter presents a review of the literature relevant to the current study. The purpose of the current study was to examine the relationship between parenting stress and dropout from a group-based parent management training program. Thus, this chapter reviews the literature on disruptive behaviors in young child, along with efficacy of parent behavior management training programs as a way to treat challenging behaviors in children. Next, parenting stress associated with raising a child with disruptive behaviors is discussed, as well as attrition rates.

Disruptive Behaviors in Children

According to the 2011-2012 National Survey of Children's Health, approximately one out of seven children ages two to eight years in the United States has a diagnosable mental, behavioral, or developmental disorder (CDC, 2018). Disruptive and challenging behaviors are the most common reason for referral of children to mental health treatment (Kazdin, 2003). Common behaviors and symptoms that could be considered disruptive include defiance, aggression, impulsivity, and inattentiveness. A more clinical definition of disruptive behaviors includes significant and repeated engagement in aggressive acts towards others and/or little regard for complying with directions, requests, and expectations from parents and other authority figures (Kazdin, 2005). Disorders in which these behaviors are common

include Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD, DSM-5, 2013). These disruptive behavior disorders often co-occur with other disorders such as Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD, DSM-5, 2013). For example, roughly 50% of children and teens with ODD or CD have a comorbid diagnosis of ADHD (Kutscher et al., 2004).

Disruptive behaviors are often categorized into two patterns: antisocial behavior pattern and defiant/disrespectful behavior pattern (Gresham, 2015). The antisocial behavior pattern is characterized by repeated acts of aggression, violation of social norms, and defiance of authority figures. The defiant/disrespectful behavior pattern primarily involves noncompliance and resistant social interactions. Estimated prevalence rates for the antisocial behavior pattern in children and adolescents range from 2% to 10%, while the range for the defiant/disrespectful behavior pattern is 1% to 11% (American Psychiatric Association, 2013). The rates are higher for males versus females for both behavior patterns (American Psychiatric Association, 2013).

Early intervention and prevention practices are key for children with disruptive behaviors, as these behaviors are associated with a variety of negative outcomes. Disruptive behaviors place children at greater risk for preschool expulsion. In state-funded prekindergarten systems, roughly seven (6.67) preschoolers per every 1,000 enrolled are expelled (Gilliam, 2005). This rate is 3.2 times the rate of expulsion for children in grades K-12 (Gilliam, 2005). Preschool expulsion rates are highest for African American children and males (Gilliam, 2005). Behaviors that caused classroom disruptions were cited by preschool teachers as the most common reason for referring students for intervention services, while the fear of the child's behaviors injuring another student for which the

teacher would be accountable was most predictive of consideration for expulsion (Gilliam & Reyes, 2018). Expulsion from preschool can hinder early academic success, which can be detrimental as early academic success is correlated with positive outcomes such as graduation from high school, increased employment wages, and minimal rates of criminal involvement (Campbell et al., 2002; Schweinhart & Weikart, 1998).

Disruptive behaviors continue to be associated with poor outcomes throughout the academic career. In a sample of 1,618 low-income children, behavior problems at age four were significantly associated with lower school-readiness scores and lower grades at the end of the kindergarten year (Hartman, Winslet, & Manfra, 2017). These results remained after accounting for demographic factors (e.g., family income needs, parent education, gender, and ethnicity) and the children's cognitive and language skills at the beginning of kindergarten.

Another study used a national database of 2028 students between the ages of 3-12 years and examined how early behavior problems impacted later academic achievement (Kremer, Flower, Huang, & Vaugh, 2016). The children were assessed three times in 1997, 2002, and 2007 as long as they were under the age of 18 years. The children were assessed using surveys to gather demographic and socioeconomic information. Additionally, the children were assessed on a variety of developmental outcomes including physical development, emotional well-being, cognitive and academic levels, and social relationships. Data on behavior problems were collected at the first time point and academic achievement was measured at each time point. Data on behavior problems were collected through the primary caregiver's responses on the Behavior Problem Index (Peterson & Zill, 1986). Academic achievement was measured using the following subtests of the Woodcock-Johnson Revised (WJ-R) Test of Achievement: Letter-Word Identification (LW subtest) and Applied

Problems (AP subtest) for children three years and older. For children six and older, the Passage Comprehension test (PC subtest) also was administered. The LW subtest measures reading skills. The AP subtest measures the ability to solve applied math problems. The PC subtest measures the child's comprehension and vocabulary skills. Higher externalizing behavior problems scores were negatively correlated with scores on all three subtests at baseline. At the two follow up data collection points, the negative association between externalizing behavior problems and lower scores was present for the LW and PC subtests (Kremer at al, 2016). This indicates that as the children aged, externalizing behavioral problems continued to be associated with lower reading, comprehension, and vocabulary scores. This study along with the previous studies demonstrate association between early disruptive behaviors with short-term and long-term negative outcomes. Given how these outcomes can impact the lives of children, it is important to intervene early to prevent current problems from escalating.

Parent Management Training (PMT)

Parent management training (PMT), also known as behavioral parent training, is an umbrella term that includes many different intervention programs and models. Teaching caregivers to use behavioral strategies to decrease disruptive behaviors and increase positive behaviors is at the core of interventions that fall into the PMT category (Kazdin, 2005; Matthys & Lochman, 2017). PMT has been found to be an effective treatment for children with disruptive behaviors (Kaminski & Claussen, 2017). This section will present an overview of the theoretical background of PMT and efficacy of PMT. Additionally, general characteristics and specific examples of PMT will be discussed. Finally, this section will end with a review of Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS).

Theoretical Background. PMT is based on the principles of operant conditioning. Operant conditioning states that behaviors develop and can be changed by what happens before the behavior (i.e., the antecedents) and what happens after the behavior (i.e., the consequences; Kazdin, 2005). Observational learning also plays a role in PMT (Matthys & Lochman, 2017). Observational learning posits that behaviors can be learned by observing others; thus, children can learn negative behaviors by observing negative behaviors in children and adults. Conversely, children can learn appropriate behaviors by seeing these behaviors modeled in other children and adults. Similarly, caregivers can learn positive parenting techniques by observing other parents, therapists, or video models (Matthys & Lochman, 2017). Although observational learning does play a role in some PMT, the core theoretical framework of PMT is operant conditioning.

Kazdin (2005) describes that main focus of operant conditioning as the contingencies of reinforcement. The contingencies of reinforcement focus is the relationship between behaviors and the environmental events that influence behaviors (Kazdin, 2005). Antecedents, behaviors, and consequences all make up a contingency. Antecedents influence behaviors before they occur and include stimuli, the settings, and the context. Behaviors are the actions that a person does or does not do. Events that follow behaviors and increase, decrease, or have no impact on them are called consequences (Kazdin, 2005). The following three paragraphs will describe the roles of antecedents, behaviors, and consequences in contingencies.

Three types of antecedents are important in the context of PMT: setting events, prompts, and discriminative stimuli (Kazdin, 2005). Setting events are the contextual factors that have an influence on behavior and include characteristics of the situation, task, the

individual, and others. Prompts are antecedents that directly facilitate performance or direct instructions to initiate behaviors. Prompts can include directions, cues, gestures, modeling, and guidance. Discriminative stimuli are stimuli that have been associated with reinforcement. The discriminative stimuli do not cause a response or behavior, but rather increase the likelihood that the reinforced behavior will occur in the presence of the stimuli. For instance, a child may only follow directions when the mother is home, but not when the father is alone with the child because the mother provides a reward for compliance while the father does not. In that case, the mother would be the discriminative stimuli as she increases the likelihood that the child will comply because her presence signals to the child that reinforcement is available.

In PMT, the behaviors that parents wish to develop are called target behaviors (Kazdin, 2005; Matthys & Lochman, 2017). Two behavior developing strategies play important roles in PMT: shaping and chaining (Kazdin, 2005; Matthys & Lochman, 2017). When shaping a behavior, consecutive approximations of the final behavior are reinforced throughout the learning process. Shaping is used when the child knows how to perform a behavior or skill. A chain of behaviors refers to several responses that must be completed in order to complete a larger overall task. Chaining is the term used when developing the sequence of behaviors. The two strategies may be used together as one may need to shape particular behaviors in a chain of behaviors.

A key principle of PMT that comes from operant conditioning is that the change in behavior occurs when specific consequences are contingent upon performance (Kazdin, 2005; Matthys & Lochman, 2017). For a consequence to be contingent upon behavior, the consequence must only be available when the behavior is present and delivered after the

behavior is performed. The four types of consequences used in PMT are positive reinforcement, negative reinforcement, punishment, and extinction (Kazdin, 2005; Matthys & Lochman, 2017). Positive reinforcement involves increasing the likelihood of a behavior by presenting a stimuli or event after the behavior has been performed. Negative reinforcement involves adverse events. Negative reinforcement increases the likelihood of a response by removing an adverse event immediately after the response is completed. Although negative reinforcement techniques are generally not used in PMT, the concept of negative reinforcement is important to understand because it plays a role in the development and maintenance of disruptive and aggressive behaviors (Patterson, 1982). The relationship between negative reinforcement and behavioral problems will be discussed further below. Punishment works to decrease the likelihood of a response by presenting an adverse stimulus or event or removing a pleasurable stimulus or event after the response. Finally, extinction is defined as decreasing the likelihood of behaviors by ending the reinforcement of a response. By removing reinforcement to a response, the response will eventually be eliminated.

PMT training uses the principles of operant conditioning to teach caregivers how to provide appropriate antecedents and respond with appropriate consequences in order to change behaviors. By focusing more on positive reinforcements and controlling the antecedents, caregivers are taught to interrupt or avoid the coercive family process. The coercive family process conceptualizes the way that disruptive behaviors developed and are maintained in a family system (Patterson, 1982). The process begins with a caregiver giving a command and the child refusing or ignoring the command. The parent may then begin shouting or threatening the child with punishments hoping to get the child to comply. In turn, the child escalates their behavior to try to escape completing the task. The process ends

when either the caregiver stops trying to get the child to comply or the child leaves and refuses to comply with the caregiver not pursing them. In either case, both caregiver and child are negatively reinforced. The caregiver is reinforced by the removal of the child's adverse and disruptive behaviors. The child is reinforced by the removal of the caregiver's demands and escape from the task. Thus, the caregiver is more likely to give in to the child in the future to avoid the child's behaviors and the child is more likely to escalate behaviors to avoid complying with the caregiver (Patterson, 1982). PMT teaches caregivers positive parenting techniques to disrupt and eliminate the coercive family process.

Efficacy of PMT. PMT is the most well studied psychotherapy treatment for children and adolescents (Kazdin, 2005). A recent review examined the evidence base for psychosocial treatments for disruptive behaviors in children (Kaminski & Claussen, 2017). The authors reviewed 64 studies of psychosocial treatments for children 12 years old and younger. The treatments were divided into six different categories: (a) parent behavior therapy, (b) child behavior therapy, (c) teacher training, (d) parent-focused therapy, (e) child-centered play therapy, and (f) family problem-solving training. These categories were further divided by delivery modality (i.e., in group, individually with or without child participation, or self-directed). Parent behavior training differed from parent-focused therapy and family problem-solving training in that parent behavior training treatments focused on teaching parents to be more effective reinforcers and incorporated behavioral orientations. Parent-focused therapy focused more on parents' attitudes, emotions and boundaries, while family problem-solving training focused on teaching the family to work collaboratively to resolve issues using a problem-solving process. The treatments were reviewed to see if they met criteria to be considered "Well-Established," "Probably

Efficacious," or "Possibly Efficacious." A treatment was considered Well-Established if at least two independent research teams in two independent settings found the treatment to be superior to a placebo or another active treatment group or equivalent to a treatment that had already been found to be well-established (Chambless et al., 1998). Of all the treatments types that were reviewed, only group parent behavior therapy and individual parent behavior therapy with child participation met the criteria for Well-Established as determined by Chambless and colleagues (1998).

In addition to the above review, individual studies provide support for the efficacy of PMT as an effective prevention and intervention strategy for a variety of child problems and populations. A recent study by Kazdin and colleagues (2018) compared two versions of Kazdin's Parent Management Training program. A total of 139 families (39 girls and 99 boys, ages 6-13 years) were randomly assigned to either traditional Parent Management Training (tPMT) or enhanced Parent Management Training (ePMT). The enhancements were designed to increase credibility of the therapist, expectations for therapeutic change, and effectiveness of the treatment. Families in both groups showed large, positive differences at the end of treatment. Children in both PMT treatment groups were found to have reductions in total behavior problems, antisocial behaviors, and symptoms of clinical diagnoses. Children improved in adaptive functioning at home and at school. Parents reported less stress, fewer depressive symptoms, and better family relationships. Positive parenting practices also improved for both groups. No differences were found between the two treatment groups indicating both versions of Parent Management Training were effective in reducing child behavior problems and increasing positive parenting skills (Kazdin et al., 2018).

Another study investigated the changes in parenting practices in parents after completing Parent Management Training-Oregon Model (PMTO; Akin, Yan, McDonald, & Moon, 2017). The study utilized a sample of parents (*N*=138) of children (ages 3-16 years) in foster care with serious emotional disturbance. The parents in the study had their children removed for either abuse, neglect, or parental substance abuse. The parents received PMTO over a 20-week period. After each parent-child session, the therapist observed the parents and completed the Parent Child Checklist (PCC). The PCC includes six parenting subscales: (a) skill encouragement, (b) positive involvement, (c) communication/monitoring, (d) family problem solving, (e) effective discipline, and (f) ineffective discipline. Across the 20-week period, participants showed significant improvement in all subscales except for ineffective discipline (Akin et al., 2017).

Evidence also exists for sustained effects of PMT. Another study of PMTO examined outcomes immediately following treatment and six months after termination (Kjøbli, Hukkelberg, & Ogden, 2012). This study followed 137 children (ages 3-12 years) with behavior problems and their parents. Families were randomly assigned to either the group-based PMTO condition or a comparison group who were free to seek any other intervention besides PMTO or any intervention based on the same principles. Caregivers completed the Parenting Practices Interview (Reid, Webster-Stratton, & Beuchaine, 2001), the Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999), the Home and Community Social Behavior Scales (Merrell & Caldarella, 2002), and the Child Behavior Check List (Achenbach, 1991) in order to assess parenting practices, child conduct problems, child social competence, child internalizing problems, and parental distress. Teachers completed the School Social Behavior Scales (Merrell & Caldarella, 2002) and the Teacher Report Form (Achenbach, 1991) in order to assess child

social competence, child conduct problems, and child internalizing behaviors. The treatment group reported reduced externalizing behaviors in children, increased social competence, increased parental mental health, and more positive parenting practices. These results were maintained at six-month follow-up (Kjøbli et al., 2012). However, there was no difference between treatment groups on clear parent expectations or teacher reported social competence (Kjøbli et al., 2012). Thus, the results show that PMT not only improves behaviors and outcomes for children and caregivers immediately following treatment, but that these improvements are more likely to be maintained after treatment has concluded as compared to other treatments that do not use behavioral principles.

In addition to the above studies that demonstrate the efficacy of PMT in reducing disruptive behaviors and increasing positive parenting practices, PMT has been shown to improve the parent-child relationship (Maddah et al., 2018). In a study by Maddah and colleagues (2018), 40 parents of children with Attention Deficit Hyperactivity Disorder were randomly assigned into a treatment group or control group. The treatment group received eight sessions of Barkley's PMT program (Barkley, 1998). Using the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979), parent-child relationships were measured following treatment and one month after termination. The PBI is a 25-item questionnaire designed to measure a caregiver's level of care and support for their child (Parker, Tupling, & Brown, 1979). High care and support scores indicate caregivers are usually with their children, talk to their children, and understand them. Higher scores also indicate that caregivers are more sympathetic, warm, and understanding than the average parent. Although there was no significant difference between the treatment group and control group on mean scores of care and support at pretreatment, results showed an increase in mean scores of care and support following treatment

and at one month follow-up for the treatment group (Maddah et al., 2018). These results demonstrate that caregivers in the treatment group increased their level of care given to their children and decreased the amount of excessive support provided. These results are important as they show that PMT programs can lead to better behaviors in children and a stronger relationship between the caregiver and the child.

General Characteristics of PMT. Many programs exist that fall under the umbrella term of PMT. The most well-known and most studied PMT programs include Parent Management Training Oregon (PMTO; Forgatch & Patterson, 2010), Parent Management Training (PMT; Kazdin, 2005), Parent-Child Interaction Therapy (PCIT; Brinkmeyer & Eyberg, 2003), The Incredible Years (IY; Webster-Stratton, 2005), and Positive Parenting Program (Triple P; Sanders, Markie-Dadds, & Turner, 2003). These programs may vary in some aspects, but they tend to share similar general characteristics (Matthys & Lochman, 2017). The programs are delivered in either group settings, individually with parents, or individually with parents along with child participation. Session content for the programs includes teaching caregivers operant conditioning principles and skills based on those principles. Typically, positive reinforcement techniques for positive behaviors are taught first. These can include reinforcing through the use praise, positive attention, tangibles, or tokens. After caregivers are taught positive reinforcement techniques, sessions switch to a focus on consequences for negative behaviors including ignoring, time-out, response cost, and loss of privileges. The skills are modeled by the therapist and practiced by the caregivers in sessions through the use of role-play or live practice with the child. Homework consists of practicing the skills taught in session at home. Homework is reviewed at the beginning of sessions to ensure caregivers are practicing the skills and to problem-solve any problems that

may have risen during the practice (Matthys & Lochman, 2017). Individual programs may add additional modules or cover additional topics.

Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS). An additional PMT program that shares the same general characteristics outlined above is Helping Our Toddlers, Developing Our Children's Skills 4th Edition (HOT DOCS; Agazzi, Childres, & Armstrong, 2017). HOT DOCS is intended for families experiencing clinically and non-clinically significant levels of disruptive behaviors. HOT DOCS was created at a large urban university in the southeastern United States and is currently in its third edition. The main focus of HOT DOCS is to teach participants to discover the function of children's behaviors by looking at the behaviors, antecedents, and consequences. The goal is to identify problem behaviors and teach replacement behaviors to children in order to help them meet the functions of their behaviors in an appropriate manner. HOT DOCS was designed primarily for caregivers with children under the age of five years. However, the curriculum can be utilized by teachers and other professionals that work with young children. HOT DOCS is taught in a group setting and consists of seven, two-hour long sessions. The first six sessions cover early childhood development, routines and schedules, basic behavioral principles, and how to develop antecedent management strategies; teach new skills; and be consistent with consequences. The final session is dedicated to teaching caregivers how to manage stress and practice self-care.

Research has been conducted evaluating the effectiveness of HOT DOCS. The first evaluation of HOT DOCS consisted of 32 caregivers (28 families) who were eligible for Part C services under the Individuals with Disabilities Education Act (IDEA, 2000; Armstrong, Hornbeck, Beam, Mack, & Popkave, 2006). As such, all children were under the age of three

and had an identified developmental delay, disability, and/or severe medical condition. Participants received the first edition of HOT DOCS (then titled simply Helping Our Toddlers). Focus groups and surveys were used to evaluate the experiences and outcomes of the participants. Results revealed that of the 28 families served, only five expressed the need for further intensive services. After completing the course, all participants reported an improvement in the child's behavior and in their own parenting skills. Additionally, participants reported feeling more connected to other families and reduced feelings of isolation (Armstrong et al., 2006).

Another study examined participants' knowledge, attitudes, and perception of their children's behaviors before and after completing HOT DOCS (Williams, Armstrong, Agazzi, & Bradley-Klug, 2010). Three hundred and ninety-nine caregivers with children ranging in ages from 18 months to six years and 11 months participated in the study. Participants were given the HOT DOCS Knowledge Test (Armstrong et al., 2006) to assess knowledge of child development, behavioral principles, and parenting strategies before and after participating in HOT DOCS. The Child Behavior Checklist (CBCL; Achenbach, 2001) also was administered preintervention and postintervention to assess participants' perceptions of the severity of their children's behavior problems. For participants who completed both preassessment and postassessments, the results showed a significant improvement in the mean score on the HOT DOCS Knowledge Test, indicating a greater understanding of behavior principles and positive parenting techniques following completion of the program. Scores on both the Internalizing scale and Externalizing scale on the CBCL were significantly higher at pretest then at posttest, indicating participants perceived the severity

of their children's problem behaviors to be lower following completion of HOT DOCS (Williams et al., 2010).

The next study compared a HOT DOCS treatment group to a waitlist control group (Childres, Agazzi, & Armstrong, 2011). Participants were recruited from a waitlist of 233 caregivers. To combat attrition, the first 75 participants on the waitlist were given priority and assigned to the treatment group. Of the 75 participants assigned to the treatment group, 47 attended class and completed the pretest and posttest measures. Of those participants assigned to the wait list control group, 53 participated and completed pretest and posttest data. The HOT DOCS Knowledge Test and CBCL were again used as outcome measures. Additionally, the authors of this study administered the Perceived Stress Scale (PSS, Cohen & Williamson, 1988), which assesses the extent to which life activities and experiences are perceived as stressful. At pretest, the two groups only differed significantly on caregiver ethnicity, but did not differ in knowledge scores, perceived severity of child problem behaviors, or perceived stress. Following completion of HOT DOCS, the treatment group's mean score on the CBCL decreased indicating a reduction in the perceived severity of problem behaviors, while the mean score of the waitlist control group increased. The results were similar for the HOT DOCS Knowledge Test with the treatment group showing a significant increase in mean scores, while the control group showed a decrease in mean score. Both groups reported higher than average levels of perceived stress at pretest and scores remained stable at posttest for both groups (Childres et al., 2011). The results suggest that early versions of the HOT DOCS program were effective at reducing caregivers' perceived severity of problem behaviors and increasing their knowledge of child

development, behavioral principles, and parenting strategies. However, early versions of the program did not influence levels of perceived stress immediately after completing the course.

Finally, HOT DOCS was evaluated as a treatment for behavioral problems in children with Autism Spectrum Disorder (ASD; Childres, Shaffer-Hudkins, & Armstrong, 2012). This study included 155 caregivers and child service providers who had a child or client with an ASD diagnosis. The HOT DOCS Knowledge Test and the CBCL were used as outcome measures. Mean scores of the HOT DOCS Knowledge Test following treatment indicated that participants understood and retained the information on child development, behavioral principles, and parenting strategies presented throughout treatment. Additionally, scores on both the CBCL Internalizing scale and Externalizing Scale significantly decreased following treatment. The authors of the study also examined scores of CBCL subdomains and found that scores for the Attention Problems, Aggressive Behavior, Pervasive Developmental Problems, Attention Deficit/Hyperactivity Problems, and Oppositional Defiant Problems subdomains were all significantly lower at posttest as compared to pretest scores (Childres et al., 2012).

In conclusion, this section provided evidence for the use of PMT programs, and particularly HOT DOCS, as a way to decrease disruptive behaviors in children and increase positive parenting practices. Although these programs have been shown to be effective, participants must be present and engaged to get the benefits of the program (Baydar, Reid, Webster-Stratton, 2003; Boggs et al., 2005; Nix, Bierman, & McMahon, 2009).

Attendance and Attrition

Although PMT has been shown to be help reduce disruptive behaviors and improve positive parenting skills, a problem exists in getting participants to start and stay in treatment

(Chacko et al., 2016). This section will cover the literature on attendance and attrition in child and family therapies, with a specific focus on parent management training programs.

Attendance, Attrition, and PMT. Treatment attendance is defined as having the participant present at the agreed upon treatment setting for scheduled treatment appointments (Nock & Ferriter, 2005). Treatment settings can vary, but often include clinics, medical buildings, and homes. An aspect of treatment attendance is treatment attrition, which refers to the participant's decision to end treatment before completing the agreed upon treatment program or against the recommendation of the provider. Attrition can occur before treatment begins or after participants attend at least one session, but do not complete the full treatment schedule (Chacko et al., 2016).

In order for participants to receive the most benefits from parent management training programs, they must be engaged in the program (Baydar, Reid, Webster-Stratton, 2003; Boggs et al., 2005; Nix, Bierman, & McMahon, 2009). Dropout from treatment has been associated with long-term negative outcomes for children and families. One study compared treatment outcomes for families that completed Parent-Child Interaction Therapy (PCIT) and families who dropped out of treatment (Boggs et al., 2005). A total of 46 families (23 completers and 23 dropouts), were contacted anywhere between 10 to 30 months after the initial assessment and assessed on a variety of treatment outcomes. All children in the study met diagnostic criteria for Oppositional Defiant Disorder according to the DSM-III. Treatment outcomes included symptoms of disruptive behavior disorders (DSM-III-R Structured Interview for Disruptive Behavior Disorders), intensity and tolerance of disruptive behaviors (Eyberg Child Behavior Inventory, ECBI), parenting stress (Parenting Stress Index, PSI), parental locus of control (Parental Locus of Control Scale, PLOC), and attitude towards treatment

(Therapy Attitude Inventory, TAI). In addition to comparing the treatment outcomes at follow-up, the authors also compared pretreatment data between the two groups. At pretreatment, the only difference found between the two groups was a higher PSI child domain score for those parents who dropped out (Boggs et al., 2005). At follow up those who completed PCIT treatment demonstrated significant improvement from pretreatment to follow-up on ratings of intensity and tolerance of disruptive behaviors and in parenting stress in both parent and child domains. There were no significant changes from pretreatment to follow-up in these outcomes for families who dropped out (Boggs et al., 2005). The completer group also showed a significantly greater decrease in ODD symptoms compared to the dropout group, with 78% of children in the dropout group continuing to meet diagnostic criteria for ODD compared to only 34% of children in the completer group (Boggs et al., 2005). The results of the study indicated that parents who drop out of treatment have more stress related to their child at pretreatment. Furthermore, parents who complete treatment have greater positive changes in ratings of their child's behaviors and their own stress.

In his seminal review of the literature on dropout from child mental health services, Kazdin (1996) reported that 40-60% of families who begin treatment prematurely drop out. The participants in the studies reviewed came from the Yale Child Conduct Clinic, that serves children ages 3-13 years old of age. In addition to identifying a 40-60% dropout rate for child mental health services, the review identified factors associated with families who drop out. Higher rates of socio-economic disadvantage, parenting stress, and history of adverse parenting practices were seen among families who prematurely dropped out (Kazdin, Mazurick, & Bass, 1993). Additionally, young, single, and minority parents were more likely to drop out (Kazdin, Mazurick, & Bass, 1993). African American families were found to

drop out at a greater rate than Caucasian families (Kazdin, Stolar, & Marciano, 1995). However, other predictors such as stress and socio-economic status accounted for a greater impact on dropout than ethnicity alone (Kazdin et al., 1995).

Low levels of enrollment and attendance have been reported in PMT programs and are of concern due to the benefits of PMT programs being greater for completers of those programs (Boggs et al., 2005). One study investigated enrollment and attendance in a parenting prevention program for conduct problems (Baker, Arnold, & Meagher, 2011). Parents of 106 preschool children who had been randomly assigned to a parent training group were tracked for enrollment and attendance. A modified version of the Incredible Years Parent Training Program (Webster-Stratton, 1994) that only lasted eight sessions was used as the intervention. The intervention had a 48% enrollment rate. Only 51 of the 106 families attended at least one session. Among the 51 families who attended at least one session, seventeen families dropped out after missing a session. There were only six families out of the 51 families who attended all eight sessions. The study revealed different patterns of enrollment and attendance. First, more than half of the families who qualified for services never attended a single session. Of those families who attend at least one session, only a small percent attended every session. Roughly one-third of families dropped out after missing a session, with nearly half of the dropout group only attending the first session. Finally, a little less than two-thirds of families had mixed attendance, attending on average four or five of the total eight sessions (Baker et al., 2011). This study demonstrates the need to prioritize retention early on in the intervention process. As many families never attended a single session or dropped out after attending only one session, future research should

identify families with greater risk factors of dropping out and identify strategies to retain those families throughout the course of the program.

Although studies have looked at attendance and attrition rates in child clinical services (e.g., Armbruster & Kazdin, 1994), it is important to review attrition and attendance specific to parent management training programs. Chacko and colleagues (2016) conducted a systematic review of the PMT literature to examine engagement in those programs and moderating factors. The review consisted of 262 studies that used PMT as the primary intervention and targeted children between the ages of 2 and 12 year with ADHD, ODD, CD, or other behavioral problems. The authors also examined the moderating effects of SES, study type (i.e., efficacy vs effectiveness), and treatment format (i.e., individual vs group). Results revealed that approximately 25% of eligible families did not enroll in a PMT program. Among the families who did enroll, roughly 26% either never attend a session or dropped out after attending the first session (Chacko et al., 2016). The combined attrition rates indicate that only slightly less than half of all families eligible for services attend and complete treatment. Of the three variables examined, only SES was found to have a moderating effect on attrition (Chacko et al., 2016).

Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS; Agazzi et al., 2017) is not immune to the problem of low attendance. A 2014 study by Ogg and colleagues aimed to determine program attendance rates and strategy implementation in English and Español versions of the program. Factors related to attendance and strategy implementation also were examined. Participants included parents who had participated in the class between August 2006 and March 2010 (n=739). Among those participants, 529 attended the English version and 210 attended the Español version. Attendance was analyzed as both a continuous

variable (i.e., number of sessions attended; possible range 1-6) and a categorical variable (i.e., program completers [attended five or more session] and non-completers [attended four or less sessions]). A "Tip Tracker" was provided to families after each session to document implementation of strategies taught. For the entire sample, the mean number of sessions completed was 4.46 out of 6 (Ogg et al., 2014). This indicates that on average participants did not met criteria for program completion. However, when attendance was analyzed as completers versus non-completers, 61.6% of participants met criteria for program completion (i.e., attending five or more classes), while 13.4% only attended at least four sessions. There were no significant differences between groups in terms of numbers of classes attended (Ogg et al., 2014). Only one variable was found to predict program attendance. Among the English group, diagnostic status of the child significantly predicted class attendance, with parents of children with no diagnosis being more likely to attend more session. For the Español group, no variables were found to be a significant predictor of attendance (Ogg et al., 2014). These findings raise an interesting question of why parents with a child with a clinical diagnosis are less likely to attend classes. Another study attempted to answer this question by investigating factors that may influence attendance in HOT DOCS.

Hofmann Leedy (2017) investigated the relationship between parents' perception of the effectiveness of HOT DOCS and treatment attendance. This study involved 139 participants who participated in HOT DOCS between August 2011 and August 2012. The Therapy Attitude Inventory (TAI; Eyberg 1993; Eyberg & Johnson, 1974) was used to assess participants' perceptions of the effectiveness of the program. Participants were given the measure to complete at the final session. The TAI was mailed to participants who did not attend the final session, but attended at least five sessions in total. The study found no significant relationship between

caregivers' perception towards treatment and attendance (Hoffmann Leedy, 2017). The findings of this study align with previous research indicating that caregivers with very high or very low expectations of treatment are more likely to attend treatment and less likely to drop out (Nock & Kazdin, 2001), as the treatment satisfaction was generally high for the sample in this study (Hoffmann Leedy, 2017). Although this study contributed to the literature base on HOT DOCS, the question remains as to why parents of children with more severe behavioral problems are more likely to drop out from treatment. One possible explanation could be that parents with a child with more severe behavioral problems may not have the mental or physical resources to devote to a weekly class. This explanation is examined further in the following section.

Parenting Stress

Deater-Deckard (2004) defines parenting stress as the averse psychological and physiological reactions that occur when attempting to meet the demands of parenting. Parenting stress occurs when the demands of parenting outweigh the perceived resources available to meet those demands. Parenting demands may include meeting the basic survival needs (e.g., food, shelter, protection, etc.) and psychological needs (e.g., attentions, affections, emotional regulation, etc.) of children. Parenting resources may include physical resources such as income or shelter and mental factors such as knowledge of childrearing, feelings of competence, and social support. Two complementary theories attempt to conceptualize the causes and effects of parenting: the parent-child-relationship (P-C-R) stress theory (Abidin, 1992) and the daily hassles theory (D-H-T; Crnic & Low, 2002).

The parent-child-relationship (P-C-R) stress theory (Abidin, 1992) consists of three components: the parent domain, the child domain, and the parent-child relationship domain. The parent domain consists of aspects of parenting stress that come from within the parent, while the

child domain consists of the child's behaviors that contribute to parenting stress. The parent-child relationship domain encompasses contributors of parenting stress that arise from the interactions of the parent and child, primarily conflicts between parents and children. The P-C-R stress theory states that families with high levels of parenting stress will have elevations in one or all three of these domains (Abidin, 1992). This theory supports a bi-directional effect parents and child have on one another. For example, a child with disruptive behaviors may lead to more coercive parenting practices, which could lead to more child disruptive behaviors. Additionally, a parent with high levels of depression may not interact warmly with their child, which may increase child behavioral or emotional problems. The increase in child problems could lead the parent to have low parental self-efficacy, which could further contribute to their depression and parental stress.

Research on the P-C-R stress theory has largely been conducted on samples of parents with mental health disorders (e.g., depression or anxiety) and with samples of children diagnosed with behavioral disorders (Deater-Deckard, 2004). However, parenting stress occurs all in families. The daily hassles theory views parenting stress as typical rather than as a disorder. The D-H-T posits that parenting stress occurs daily for parents and parents must learn to cope with the daily hassles of raising a child. Although the daily dose of parenting stress may be small for typical parents, if parents are unable to cope with the small stressors, these stressors compound and may become overwhelming (Crnic & Low, 2002). Parents' appraisals of child behaviors influence whether the behaviors are perceived as stressful or minor annoyances. For instance, a mother who attributes her daughter's refusal to wear bows as a failing in her own ability to parent effectively may experience stress from this occurrence. However, a mother who attributes the same behavior to her daughter's sense of independence may see the behavior as a slight

annoyance that does not warrant stress. The two theories do not contradict each other, but rather provide explanations for how parenting stress may develop in a variety of populations.

Parenting stress also may influence a child's ability to succeed in school. One study examined the relationship between parenting stress and the social competence of preschoolers (Anthony, Anthony, Glanville, Naiman, Waaners, & Shaffer, 2005). A sample of 229 preschoolers in Head Start and 78 children in private daycares were used for this study. Parents of the children completed measures of parenting stress and parent behaviors. The teachers of the children completed ratings of social competence, internalizing behaviors, and externalizing behaviors. There was no difference between groups in terms of reported levels of stress, with both sets of parents reporting roughly average levels of parenting stress. However, parents of children in private preschool reported using more permissive parenting behaviors and being more nurturing (Anthony et al., 2005). In the combined sample, parents with greater levels of self-reported parenting stress used stricter discipline strategies, had lower expectations of their children, and were less nurturing (Anthony et al., 2005). High levels of parental nurturing were related to low levels of children's social competence. However, parenting stress was found to have the strongest correlation with children's social competence and classroom behaviors. Controlling for demographic factors, parenting stress had the most significant predictive effects on social competence, internalizing behaviors, and externalizing behaviors. Parent behaviors were not found to have a mediating effect. This study shows the direct effects that parenting stress may have on children. The results of this study further demonstrate the negative effects of parenting stress.

Parenting behaviors influences children's development of early executive functioning. Executive function is important for cognitive development and school success (Blair & Razza,

2007; Clark et al., 2010). Executive functioning encompasses higher-order neurocognitive processes that organize and direct behaviors, emotions, and cognitions (Garon et al., 2008; Isquith et al., 2005). One study investigated the relationship between parental bonding and executive functioning of two-year old children and the mediating effects of parenting stress (de Cock et al, 2017). The study included participants from the 'Expectant Parents' (Maas et al., 2012) study and was comprised of 335 mothers and 261 fathers of two-year old children. Parental bonding questionnaires were completed by the caregivers at 26 weeks of pregnancy, 6 months postpartum, and 24 months postpartum. Caregivers also completed parenting stress and child executive functioning questionnaires at 24 months postpartum. The researchers found significant indirect paths between parental bonding and parenting stress for mothers and fathers. Specifically, higher prenatal parental bonding lead to higher levels of bonding at 6 and 24 months postpartum, which led to lower levels of parenting stress at 24 months postpartum (de Cock et al, 2017). Parenting stress also was found to have a mediating effect between bonding and executive functioning, with higher parental bonding at 6 months leading to lower levels of parenting stress. Lower levels of stress were associated with less child executive functioning problems (de Cock et al, 2017). This was true for both mothers and fathers. The study illustrated the indirect effects parenting stress may have on child outcomes. As discussed in the previous study, parenting stress is associated with less nurturing parenting behaviors, which could lead to less parental bonding. PMTs may offer a way to decrease parenting stress, given that goal of PMT programs is to teach caregivers positive parenting practices which in turn can lead to improved parent-child relationships.

PMT and Parenting Stress

Parent management training (PMT) has been found to be effective in reducing disruptive behaviors of children. Less research has examined parenting stress as a primary outcome of PMT. One meta-analysis (Cooley, Veldorale-Griffin, Petrern, & Mullis, 2014), reviewed the effects of Parent-Child Interaction Therapy (PCIT) on parenting stress. The authors reviewed 11 PCIT studies from 2004 to 2011. PCIT was found to have moderate to large effect sizes when it came to reducing parenting stress as measured by the Parent Stress Index: PSI Parental Distress (-.73), PSI Parent Child Difficult Interactions (-.94), and PSI Difficult Child (-.80; Cooley et al., 2014). These results indicate that following PCIT completion, caregivers perceived a reduction in their own stress related to parenting, the frequency of difficult interactions with their children, and the severity of their child's behaviors. These findings are important as having perceptions of severe behavior and frequent difficult parent-child interactions are risk factors for parental stress.

In addition to PCIT displaying positive effects on parental stress, the Parent Management Training program (PMT; Kazdin, 2005) has been shown to influence parental stress. In a study by Booker, Carpriola-Hall, Dunsmore, Greene, and Ollendick (2018), the researchers conducted secondary analyses of data from 134 mother-child dyads who participated in a randomized control trial comparing the efficacy of PMT and Collaborative & Proactive Solutions for Oppositional Defiant Disorder (CPS for ODD; Ollendick et al., 2016). Collaborative Problem Solving is a treatment that involves the caregiver and child learning communication skills, emotion regulation, and problem-solving. The goal of the secondary analysis was to examine whether children's perceptions of positive relationships with their caregivers impacted treatment responsiveness, which would impact caregiver stress. The children reported on their relationship with their caregiver through the Relations with Parents subscale of the Behavior Assessment

System for Children, Second Edition (BASC-2; Reynolds & Kamphaus, 2000). Maternal stress was measured using the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995). Results from hierarchical linear models revealed that for both treatments positive relations with parents had a significant, negative effect on maternal stress and ODD severity, while ODD severity showed a significant, positive effect on maternal stress (Booker et al., 2018). However, when ODD was included in the model, relations with parents no longer had a unique and significant effect on maternal stress (Brooker et al., 2018). A final model that combined the two effects, revealed children's reports of positive relations had an indirect effect maternal stress, whereby children's perceptions of positive relations with parents predicted lower ODD severity, and ODD severity predicted lower maternal stress (Brooker et al., 2018). The results indicate that improving the parent-child relationship plays a part in improving maternal stress, though decreasing severity of behaviors has a greater influence on maternal distress. This further provides evidence for PMT programs as a means to not only improve child behaviors, but also improve maternal well-being.

Evidence also exists in support of group based PMT programs' positive effects on parental stress. Niec, Barnett, Prewett, and Chatham (2016) compared the efficacy of Parent-Child Interaction Therapy (PCIT; Eyberg & Funderburk, 2011) and a modified version of PCIT for groups. Along with examining behavioral outcomes of children, the researchers investigated the effects of both treatments on parental stress at posttreatment and six month follow up using the Parenting Stress Index-Short Form (PSI-SF; Abidin, 1995). Children's behavioral problems were measured using the Behavioral Assessment System for Children-2 (BASC-2; Reynolds & Kamphaus, 2004) and the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). Eight-one families participated in the study and were randomly assigned to either individual

PCIT (*n*=42) or group PCIT. For both treatment groups, parents reported a significant reduction in their children's externalizing and internalizing behaviors, as well as an increase in adaptive skills (Niec et al., 2016). With respect to parenting stress, parents in both groups demonstrated a significant reduction in parenting stress from intake to posttreatment and intake to follow-up (Niec et al., 2016). These findings illustrate the effectiveness of group formats in reducing behavioral problems and parenting stress. These findings are important as they demonstrate that group formats, which have the ability to help more people at one time while using less resources, demonstrate comparable benefits to individual treatments. Additionally, this study lends more support for PMT programs as a way to decrease parental stress. Although PMT may help reduce parenting stress, parenting stress also may be a barrier to successful PMT completion.

Parenting Stress and Attrition in Child Behavior Treatments. Parenting stress has been hypothesized as interfering with treatment and attendance. One study sought to improve attendance by addressing stress during a PMT program (Prinz & Miller, 1994). One hundred and forty-seven families were assigned to either standard family treatment (SFT) or enhanced family treatment (EFT). The treatment used was based on operant conditioning principles and included topics such as focusing and reinforcing prosocial behaviors, extinction for mild misbehaviors, and problem solving. The treatment was used in both conditions. However, participants in the EFT group were prompted to discuss and problem solve stressors such as personal worries, family disputes, external demands, and other issues not directly related to treatment with the therapist. The EFT participants had a significantly lower dropout rate than the SFT group. For those that started the EFT program, only 29.2% dropped out before finishing the treatment, as compared to a 46.7% dropout rate for the SFT group (Prinz & Miller, 1994).

Kazdin and Mazurick (1994) examined a variety of parent and child variables to determine which were associated with dropout. Their study also investigated whether there were differences between participants who dropped out early (after completing 6 weeks or less of treatment) or later (after completing at least 7 weeks of treatment). Parent variables included socioecominc disadvantage, parental stress, psychopathology, history of antisocial behavior, and adverse family child-rearing practices. The child variables included antisocial behavior, emotional and behavioral problems, academic problems, and social behaviors. The results showed that families who dropped out early from treatment reported higher levels of stress than those who completed the treatment (Kazdin & Mazurick, 1994). Completers of the program and those who dropped out later did not differ on stress. This study showed the importance of identifying parents who are experiencing stress early as they are more likely to drop out near the beginning of treatment.

Parental stress also has been associated with dropping out before starting treatment (Calam, Bolton, & Roberts, 2002). In this study, 57 mothers of children with behavioral problems were interviewed and completed the Beck Depression Inventory (BDI) and the Parenting Stress Index (PSI) before beginning treatment. Of the 57 mothers who were part of the study, roughly 20% (19.3%) never attended a single session. Mothers who did not attend a session reported higher BDI and PSI scores than those attended (Calam et al., 2002). Furthermore, PSI scores were positively associated with expressed emotions of criticism and hostility towards the child, which may serve as proxies for harsher parenting. PSI scores also were negatively correlated with parental warmth (Calam et al., 2002). These results indicate that not only is parenting stress associated with dropping out of treatment, but those with higher

levels of stress may be in greater need of treatment as they may be likely to be more critical and less warm to their children.

Parenting stress also has been shown to impact treatment outcomes in child-directed therapies (Isaia, Weinstein, Shankman, & West, 2018). The researchers attempted to identify predictors of dropout in families of children with pediatric bipolar disorder participating in child- and family-focused cognitive behavioral therapy (CFF-CBT). The sample included 57 participants aged seven to thirteen and their parents. CFF-CBT involves individual child sessions, with parents participating in parallel work. Parenting stress was measured by the Parental Stress Scale (PSS: Berry & Jones, 1995). The PSS and other baseline measures were completed by participants after enrollment and before beginning treatment. Dropout was defined as ending treatment any time before the final twelfth session. The average number of sessions completed by participants who eventually dropped out was 5.60 sessions (Isaia et al., 2018). Higher PSS scores at baseline were correlated with dropout (Isaia et al., 2018). These results indicate that parents with higher levels of perceived stress are more likely to prematurely discontinue services for their children.

Another study examined predictors of dropout in Parent-Child Interaction Therapy (PCIT; Werba, Eyberg, Boggs, & Algina, 2006). Participants included 99 mother-child dyads (52 in treatment group and 47 in waitlist group). All children were between three and six years of age and met DSM-III criteria for ODD. The authors had two definitions of dropout: study dropouts and treatment dropouts. Study dropouts were participants who attended at least one assessment session, but did not begin treatment. Treatment dropouts attended at least one treatment session, but dropped out before completing treatment. The dropout rates were 49% for study dropouts and 38% for treatment dropouts. For all participants, being assigned to the

waitlist group was the most significant predictor of dropout. However, for those that began treatment, parent domain stress as measured by the PSI and inappropriate parenting behavior (e.g., criticism and sarcasm) were significant predictors of dropout (Werba et al., 2006). These results align with those from Calam and colleges (2002) who also found parenting stress and negative parenting behaviors to be associated with treatment dropout.

The correlation between parenting stress and dropout from PCIT also was studied by Fernandez and Eyberg (2009). Based on the findings of Werba et al. (2006), changes were made to the PCIT protocol to address parental distress. Therapists in the study were instructed to take time to discuss parents' personal concerns in a structured way. Additionally, child-care for siblings and travel reimbursement were provided to participants to reduce logistical barriers to treatment. In addition to examining predictors of treatment dropout, the authors also investigated predictors of attrition during a two-year follow-up phase. Mother-child dyads (N=63) were randomly assigned to either a PCIT with maintenance follow-up group (MT) or a PCIT with assessment only follow-up group (AO). Both groups were called every three months to complete child and maternal measures. However, families in the MT group received an additional phone call from their therapist once per month during the two-year follow-up. Maintenance of skills and stress levels were assessed during these phone calls. Support and advice related to parenting and child behaviors was given as needed during the maintenance phone calls. Results of the study revealed a 36% total attrition rate. Parenting stress did not emerge as a significant predictor of dropout (Fernandez & Eyberg, 2009). However, having additional stressors that interfered with treatment was endorsed by 13% of families who dropped out. Maternal distress (combined scores on the PSI and BDI) was a significant predictor of follow-up attrition in the AO group (Fernandez & Eyberg, 2009). Results suggest that attending to parenting stressors in

treatment sessions may serve to prevent dropout from treatment. However, in the absence of support from therapist, families were more likely to drop out from follow-up procedures.

Friars and Mellor conducted a prospective study (2007) and a retrospective study (2009) on dropout from behavioral management training. In the prospective study, eighteen parents of adolescents with a primary diagnosis of ADHD were divided evenly into two treatment groups. Both groups received Barkley's (1998) Behavior Management Training program as the treatment. There were high rates of dropout in both groups. In Group 1, three parents failed to begin the program, while three parents later dropped out after completing less than four sessions. In Group 2, four parents failed to attend the program completely, while two parents dropped out before completing four sessions. For the purposes of analysis, parents in both groups who began the program but eventually dropped out were compared to those parents who completed the group program. In terms of stress differences between the groups, scores on the Parent Stress domain and the Life Stress domain, as measured by the Parent Stress Index (PSI), were higher for those parents that dropped out of the program (Friars & Mellor, 2007). Although there was not a significant difference in the stress scores between the two groups, it is hypothesized that the elevated scores for those parents who dropped out may be indicative of feeling more overwhelmed by life events and less adequate as a parent than parents who completed the program.

In their retrospective study on dropout from parent training programs, Friars and Mellor (2009) interviewed nine parents who had dropped out from a parent training program to investigate the reasons why they chose to leave the program. All nine participants had dropped out from a group parent training program that was based on Barkley's (1998) Parent Management Training program. Two broad themes emerged from the interviews as reasons why

parents' dropped out: the severity of the child's behavior and feeling stressed or overwhelmed (Friars & Mellor, 2009). Factors that contributed to the stress of parents who dropped out included caring for other children, feeling unable to implement strategies discussed in class, parenting as a single parent, and logistical issues such as obtaining childcare and transportation to classes. Combined, the two studies from Friars and Mellor (2007, 2009) reveal how stress may influence attendance in group-based parent management training classes.

Although the studies reviewed above indicate a negative correlation between parenting stress and completion of parent management training programs, a more recent study found different results. A study by Rostad, Moreland, Valle, and Chaffin (2018) sought to examine the relationship between completion of parent management training programs, parenting stress, and perceived barriers to treatment. The authors examined these variables for parents in three different parenting programs: Parenting Our Children to Excellence (PACE, N=610), adapted Parent-Child Interaction Therapy (PCIT, N=70), and a parenting program developed at a local child welfare agency (N=83), which served as the standard parenting program for the study. This study was unique as the participants consisted of parents who voluntarily sought services (i.e., PACE group) and parents who were mandated to participate in a parenting program due to child physical abuse and/or neglect (i.e., PCIT group and standard parenting program group). Parenting stress was measured using the Parenting Stress Index-Short Form (PSI-SF) and barriers to treatment were measured by the Obstacles to Engagement Scale (Dumas et al., 2007). Data collection occurred preintervention and postintervention. Program completion for the PACE program was defined as attending seven or more of the eight total sessions. Completion for the PCIT and standard parenting program was defined as attending 11 or more of the 12 total sessions. Forty-two percent of participants met criteria for completion across the all programs.

Results revealed that parents in the PACE program scored significantly higher on the stress measure than those in PCIT or the standard parenting program. Structural equation modeling showed direct effects between parenting stress at pretreatment and parenting stress at posttreatment and perceived barriers to treatment. Direct effects were observed for parenting stress at posttreatment on program completion. The results indicate that inconsistent with previous studies, higher levels of parenting stress may directly contribute to program completion (Rostad et al., 2018). The authors suggest that the inconsistent findings may be a result of previous studies combing parenting stress with other variables. This study highlights the need to study parenting stress in isolation of other variables.

Another study that lends support for the need to study parenting stress as its own variable involves HOT DOCS(Agazzi et al., 2017) and examined the relationship between parent and child demographic variables and caregivers' perceived stress and how caregivers' perceived stress was related to number of sessions completed (Patenaude, 2011). Data from a total of 474 participants were used as the sample for this study, and the Perceived Stress Scale: 10 Items (PSS-10; Cohen & Williamson, 1988) to measure stress. This scale has a maximum score of 40, with higher scores indicating higher levels of overall stress. The mean score on the PSS-10 for the group was 17.95 (*SD*=6.99). Gender was found to have a significant effect on perceived stress, with females reporting higher levels of stress. There was a significant trend for participants with higher levels of education to report less stress. Higher levels of reported child behavior problems were associated with higher levels of perceived stress. Attendance was conceptualized as two categories: attending two or less classes or attending three or more classes. In this study, 87.3% of participants attended three or more classes. There was no significant difference in terms of perceived stress between those who attended three or more class and those

who attended two or more classes (Patenaude, 2011). While this study found no relationship between stress and attendance, it should be noted that the scale used to measure stress is not a direct measure of parenting stress. The PSS-10 is a measure of global stress and does not account for the individual effects of parenting stress. It is important to measure parenting stress in isolation to determine the specific effects of parenting stress on treatment outcomes.

Summary of the Literature

Disruptive and challenging behaviors are the most common reason for referral of children to mental health treatment (Kazdin, 2003). Parent management training (PMT), has been found to be an effective treatment for children with disruptive behaviors (Kaminski & Claussen, 2017). In a recent review by Kaminski and Claussen (2017) examining effectiveness of a variety of treatment modalities for treating disruptive behaviors, only group parent behavior therapy and individual parent behavior therapy with child participation met the criteria to be considered "Well-Established." Although there is a large body of evidence supporting the efficacy of PMT programs, these programs face of the challenge of initiating clients in treatment and keeping them engaged in treatment through to completion (Chacko et al., 2016). Current estimates indicate that more than half of all families eligible for PMT services either never enroll or drop out of services after only attending one session (Chacko et al., 2016).

High levels of parenting stress have been posited as an explanation for the significant attrition rates in PMT programs. Parenting stress is defined as the adverse psychological and physiological reactions that occur when attempting to meet the demands of parenting (Deater-Deckard, 2004). Parenting a child with disruptive behaviors has been associated with higher reported levels of parenting stress (Deater-Deckard, 2004). High levels of parenting stress have

been shown to predict failure to initiate services and dropout from services (Calam et al., 2002; Werba et al., 2006). This is unfortunate as PMT programs also have been found effective in reducing parental stress for those who complete the programs (Cooley et al., 2014). This creates a difficult scenario where the families who are in most need of PMT services because of the severity of disruptive behaviors are unable to initiate or complete services due in part to the stress caused by parenting a disruptive child.

HOT DOCS (Agazzi, Childres, & Armstrong, 2017) is a PMT program that teaches participants to discover the function of children's behaviors by looking at the behaviors, antecedents, and consequences. The HOT DOCS program has been shown to be effective in reducing disruptive behaviors in both typically developing children and children with developmental disabilities (Armstrong et al., 2006; Childres et al., 2011; Childres et al., 2012; Williams et al., 2010). As with other PMT programs, HOT DOCS also experiences high attrition rates of participants. Studies have been conducted to examine the relationship between different caregiver and child variables and attendance and dropout from the program (Hofmann Leedy, 2017; Ogg et al., 2014; Patenaude, 2011). Only child diagnostic status was revealed to predict attendance (Ogg et al., 2014). However, these studies did not look specifically at parenting stress and its association with attendance and dropout. Studies have demonstrated the importance of examining parenting stress in isolation to determine the unique effects it may have on treatment engagement (Rostad et al., 2018). Thus, the purpose of the current study is to investigate the associations between pretreatment levels of perceived parenting stress and attendance and completion of the HOT DOCS program. Result of this study will provide the HOT DOCS program with valuable attendance and attrition data, which can then be used to target those at risk for dropout.

Chapter Three:

Methods

The purpose of the current study was to investigate the relationship between parenting stress and attendance and attrition in Helping Our Toddlers, Developing Our Children's Skills 4th Edition (HOT DOCS), a PMT program. In addition, the current study sought to determine the proportion of attendance and attrition in HOT DOCS. This chapter includes a discussion of the research setting, descriptions of participants and research design. Additionally, the HOT DOCS training sessions are presented followed by a review of the study measures, data collection procedures, data analyses, and ethical considerations

Setting

HOT DOCS is delivered in a group format in a variety of settings including university-based pediatric clinics, YMCAs, and both religious and non-religious community preschools. Class size ranges from seven to fourteen adults. Classes are taught one day a week over a six-week period with each class session lasting no more than two hours. For the convenience of parents and to accommodate different schedules, HOT DOCS offers classes throughout the year. Classes are offered in January, April, June, August, and October of each year. As many as four separate classes may begin in the same week, but may be held on different days or times. Classes are taught in the morning and evening to accommodate different parenting schedules.

There is a $20 registration fee for each caregiver participant and a $40 registration fee for professionals who attend the class.

Classes are taught by one certified teacher and either another certified teacher or a teacher-in-training. To become a certified HOT DOCS teacher, one must observe a set of classes and co-teach a set of classes with a certified teacher or attend a one day, six-hour training course and co-teach a set of classes with a certified teacher. Prospective teachers must pass weekly certification requirements during the classes they co-teach.

Description of Participants

The current study includes data from adults who participated in HOT DOCS between October 2018 and September 2020. A total of 279 caregivers participated in HOT DOCS during this timeframe. In order to attend HOT DOCS, participants must be at least 18 years old and be primarily responsible for a child between the ages of 0-5 years. Participants may include grandparents or non-biological parents, if they are designated as the primary caregivers of the child.

To be included in the current study, caregivers must have participated in HOT DOCS and completed the caregiver demographic form and stress scale. Professionals (e.g., teachers, students, behavioral specialists, etc.) who participated in HOT DOCS in a formal role (not as a parent) and parents who sought information about HOT DOCS but did not register were excluded from the current study. Couples and caregivers who co-parent were included in the current study. Couples completed their own individual stress measure rather than completing one stress measure together. Due to the fact that the measures are for the same child, it could be thought that the assumption of independent data was violated. However, caregivers perceive child behaviors differently. One caregiver may have perceived a behavior to be stressful, while

another may have not. Unique evaluations of behaviors by different caregivers helps to ensure all parental stress scores remain independent of each other.

IRB approval was obtained for 239 of the 279 caregivers who participated in HOT DOCS between October 2018 and September 2020. Three participants were excluded due to lack of attendance data. A total of 235 participants were used for analysis. The sample consisted largely of White (75%), non-Hispanic or Latino (65%), female (69%) participants. Ages ranged from 21 to 77 years old (M=37.6 years). Males made up 30% of the sample. This is encouraging as typically females enroll in PMT programs and therefore most research focuses on female caregivers (Chacko et al., 2017; Fernandez & Eyberg, 2009; Rostad et al., 2018). Hispanics and Latinos made up 30% of the sample, which is representative of the local population. Households were mostly English speaking (83%), with annual incomes of $50,000 or above (62%). The number of adults in the home ranged from one to six (M=2.09) and number of children ranged from zero to four (M=1.70). Most participants were employed either full-time (60%) or part-time (15%), were part of a dual 2 parent household (84%) and were the biological parent (94%). Tables 1 and 2 provide demographic data.

Table 1. *Demographics of Participants*

Variable	N (%)
Gender	
Male	71 (30.2)
Female	163 (69.4)
Prefer Not to Answer	1 (.4)
Ethnicity	
Hispanic or Latino	69 (29.5)
Not Hispanic or Latino	152 (65)
Prefer Not to Answer	13 (5.6)
Race	
White	169 (75.1)
Black or African American	15 (6.7)
American Indian or Alaska Native	1 (.4)
Asian	11 (4.9)
Two or More Races	11 (4.9)
Prefer Not to Answer	18 (8)

Table 1. *Demographics of Participants (Continued)*

Household Structure	
Dual 2 Parent Household	198 (84.3)
Male (Single) Head of Household	7 (3.0)
Female (Single) Head of Household	16 (6.8)
Other-Relative/Kinship Care (Single)	3 (1.3)
Dual 2 Other-Relatives/Kinship Care	5 (2.1)
Prefer not to answer	5 (2.6)
Highest Level of Education in the Home	
Some or No High School	8 (3.4)
High School Graduate or GED	13 (5.5)
Technical Certificate	4 (1.7)
Some College	15 (6.4)
Associates Degree	15 (6.4)
Bachelor's Degree	75 (31.9)
Advanced Degree	103 (43.8)
Prefer not to Answer	2 (.9)
Primary Language	
English	195 (83)
Spanish	32 (13.6)
Haitian-Creole	1 (.4)
English and Spanish	3 (1.3)
Other	2 (.9)
Prefer not to Answer	2 (.9)
Relationship to Child	
Biological Parent	221 (94)
Grandparent	4 (1.7)
Adoptive Parent	4 (1.7)
Foster Parent	1 (.4)
Other	5 (2.1)
Marital Status	
Married	189 (80.4)
Separated	7 (3)
Single	25 (10.6)
Widowed	1 (.4)
Divorced	10 (4.3)
Other	3 (1.3)
Current Employment	
Full-Time	140 (59.8)
Part-Time	34 (14.5)
Not Employed	51 (21.8)
Prefer not to Answer	9 (3.8)
Yearly Household Income	
$0 to 9,999	4 (1.7)
$10,000 to 24,999	13 (5.6)
$25,000 to 34,999	16 (6.9)
$35,000 to 49,000	12 (5.2)
$50,000 and Above	145 (62.2)
Prefer not to Answer	43 (18.5)
Program Completer	
Yes	212 (90.2)
No	23 (9.8)

Table 2. *Means for the Sample*

	Minimum Value	Maximum Value	Mean	Standard Deviation
Age (Years)	21	77	37.63	7.27
Number of Adults in Household	1	6	2.09	.56
Number of Children in Household	0	4	1.70	.72
Number of Classes Attended	1	7	5.96	1.26

Research Design

The current study used elements from a variety of research designs to answer the proposed research questions. In general, the current study can be described as a non-experimental, semi-longitudinal, quantitative design, using archival participant data collected by the HOT DOCS program. This study specifically examined attendance rates, attrition and pre/post parenting stress levels. Descriptive statistics were used to report the proportion of dropout for participants that attended at least one class. A dependent measures t-test was run to examine how parental stress levels change from pretreatment to posttreatment for those that complete the HOT DOCS course. Finally, regression analyses were used to determine the relationship between pretreatment parenting stress levels and completion of HOT DOCS, along with the relationship between pretreatment parenting stress levels and number of classes attended.

Helping Our Toddlers, Developing Our Children's Skills (HOT DOCS)

Helping Our Toddlers, Developing Our Children's Skills, Fourth Edition (HOT DOCS; Agazzi, Childres, & Armstrong, 2020) is a manualized PMT that utilizes positive behavior supports and parenting strategies to reduce both clinically significant challenging behaviors and non-clinically significant challenging behaviors in children. HOT DOCS was designed to

address sleep, feeding, compliance, tantrums, and other disruptive behaviors. HOT DOCS classes are available in both English and Spanish. Each class follows the same format, with the exception of the first class. The first class begins with an orientation to the course, followed by the topic of the week, and then ends with the Parenting Tip. Homework is assigned each week at the end of class. Homework consists of 5 minutes of uninterrupted playtime with the participant's children every day. Participants also are instructed to practice a Parenting Tip throughout the week. The following classes begin with a review of the previous week's topics, then follow the same format as the first class. HOT DOCS uses videos, role-play, and live demonstrations to teach the skills of each class. Below is a short description of the topics covered in each class. A simplified list of HOT DOCS session topics is listed in Table 3.

Class 1: Early Development and Daily Routines. The goal of the first HOT DOCS class is to orient participants to the course, establish rapport between instructors and among participants, discuss early childhood development and daily routines, and introduce the first Parenting Tip. The class begins with introductions during which participants share about their families and their expectations for the course. This activity is meant to help build a sense of community among the participants by showing that many families are experiencing similar, if not the same, challenges at home. Participants are then given an overview of the topics to be covered throughout the course and the potential benefits of completing the course. The instructors then cover early brain development and developmental milestones in relation to behaviors and learning in young children. The importance of routines and rituals on child development is covered. Participants are then taught the first Parenting Tip, Catch Them Being Good, which is equivalent to using specific labeled praise to increase positive behaviors in their children. Participants are then introduced to the concept of Special Play. Participants are taught

how to set up Special Play and given activities each week to use during Special Play. Special Play in HOT DOCS consists of 5 minutes of dedicated parent-child play time. During Special Play, parents are instructed to practice skills taught in class. The homework for Class 1 is to practice the Parenting Tip: Catch Them Being Good throughout the week and do 5 minutes of Special Play every day.

Class 2: Development and Behavior. Class 2 begins with a review and reflection of the previous class. The goal of Class 2 is to help participants start determining the functions of behaviors. Participants are taught the basics of behaviorism, including how behaviors develop and are maintained. Participants learn to determine the function of a behavior by looking at the behavior, what happened right before the behavior, and what happened immediately after the behavior. Through the use of video vignettes and story examples, participants practice determining the function of various behaviors. The Parenting Tip for the second class is Use a Calm Voice. Participants are instructed to keep their voices calm as shouting can lead to escalation of behaviors. The homework for Class 2 is to practice the Parenting Tip: Use a Calm Voice throughout the week and do 5 minutes of Special Play every day. Participants also are instructed to practice determining the functions of their children's difficult behaviors.

Class 3: Developing Preventions. Class 3 begins with a review of the Parenting Tip and Special Play from Class 2. Instructors then ask for a volunteer to share one of their child's problem behaviors to provide an opportunity for the class to determine the function of the behavior. Instructors then transition into a discussion about preventions. Participants are taught what preventions are, what purpose they serve, and are given examples of different preventions to use in different situations. Participants practice identifying appropriate preventions using a story example. The Parenting Tip for Class 3 is Give Clear Directions. Participants learn to

phrase directions in positive ways to help increase compliance. Participants practice turning a list of common negatively phrased directions into positively phrased directions. The homework for Class 3 is to practice the Parenting Tip: Give Clear Directions throughout the week and do 5 minutes of Special Play every day. Participants are now able to find the function of behaviors and determine useful preventions for those behaviors. They are instructed to do so as part of their homework.

Class 4: Teaching New Skills. Class 4 starts with a review of the previous class and another call for a participant to volunteer a problem behavior to problem solve with the class. Together the class determines the function of the behavior and preventions that could be implemented. The main topic of Class 4 is how to teach new skills to children. Participants are encouraged to think about what new skills their child needs in order to meet the functions of their behaviors in appropriate ways. Participants learn steps for teaching new skills and optimal times to teach. The Parenting Tip of the class is Teach Waiting. Participants are given suggestions on how to help children learn to wait and ways to present these options to children. The homework for Class 4 is to practice the Parenting Tip: Teach Waiting throughout the week and do 5 minutes of Special Play every day. Additionally, participants are instructed to start identifying replacement behaviors for their children's negative behaviors.

Class 5: Planning New Responses. Class 5 begins with a review of the homework and previous class. A volunteer is asked to problem solve their child's negative behavior with the class to discover new skills to teach the child. The class then reviews the story example that has been used throughout the course to determine new skills needed for the child in the story. Participants are then led through a review of the basics of behavior. They are reminded that behaviors persist because they work for the child and are sometimes accidently reinforced by

caregivers. Participants are taught appropriate responses to use when a child displays positive behaviors. New responses for negative behaviors are then introduced. Parents are taught how to use planned ignoring, validate and redirect, offer a break, use follow through, and use time out from positive reinforcement. Use Follow Through is the Parenting Tip for this class. Parents are encouraged to use the follow through procedure taught earlier in class to help children comply with clear directions. The homework for Class 5 is to practice the Parenting Tip: Use Follow Through throughout the week and do 5 minutes of Special Play every day. The final part of the homework is for parents to completely problem solve their children's negative behaviors by finding the function of the behaviors, developing preventions for those behaviors, teaching replacement behaviors, and responding in new ways to behaviors.

Class 6: Strengthening Family Relationships. The final class begins with a review of the problem-solving process and the homework from the previous class. The topic then shifts from the behaviors of children to the behaviors of adults. Participants listen to the story example that has been used throughout the course but are instructed to pay attention to the behaviors and perspectives of the parents. Participants are given information about stress and how stress can affect behaviors. Participants are taught preventions for common stressors, new skills to help reduce stress, and new responses for when they or others are stressed. Participants practice developing preventions, skills, and responses for stress using the story example. The final Parenting Tip is Take 5 For Yourself, in which caregivers are instructed to spend 5 minutes each day engaging in a self-care activity. Participants then complete the postintervention paperwork.

Data Collection Procedures

The current study utilized archival data collected by the HOT DOCS program from October 2018 to September 2020. From October 2018 to December 2019, HOT DOCS consisted

of seven classes. As of April 2020, HOT DOCS reverted back to the original six class structure. Previously seven classes were required as time was dedicated in the first class to obtaining consent and completing pre-test forms. However, now participants are required to complete all paperwork online through Qualtrics before attending the first class. HOT DOCS is open to all residents of the funding county and there are no clinical requirements for attending the course (e.g., a child with a diagnosis is not required). Participants are recruited through a variety of methods including self-referral, referral from pediatricians/clinicians, social media postings, and the justice system.

Table 3. *HOT DOCS Parent Training Curriculum*

Class	Topic	Parenting Tip
1	Early Development & Early Routines	Catch Them Being Good
2	Development and Behavior	Use a calm voice
3	Developing Preventions	Give Clear Directions
4	Teaching New Skills	Teach Waiting
5	Planning New Responses	Use Follow Through
6	Strengthening Family Relationships	Take 5 For Yourself

Data to address the research questions were collected at two time points for each participant. Once participants registered and paid for the course, they were sent a participant and child demographic questionnaire and a caregiver stress measure. Participants were sent the demographic questionnaires and stress measure through Qualtrics, a survey software program. Participants were sent an anonymous link to complete the survey and told to complete the surveys before attending the first class. Before April 2020, a paper and pencil option was available for those who did not complete the measures before arriving to class or those who opted out of the online version. All measures are now completed online as HOT DOCS as switched to a completely virtual format.

The second data collection time point occurred within 3 days of the final class, whether the 6- or 7-week course. Participants were sent links to a Qualtrics post-test and asked to complete surveys electronically. Those who did not complete the link by the final class were provided paper and pencil surveys during class to complete at the course completion. Post-test measures included consumer satisfaction, ECBI Intensity and Problem scores and parenting stress surveys. HOT DOCS instructors recorded participant attendance at the beginning of each class. All forms and measures were scored and entered into an electronic database. Currently all forms and measures are scored by Qualtrics. However, this study included measures that were hand scored, as these data were collected before the switch to Qualtrics. Following scoring, all physical data were stored in locked file cabinets in a locked room. All online data were entered on to a secure server on password protected computers. All data were de-identified. The PI of this current study accessed the data by using the secure server and did not have access to physical copies of the data.

Measures

Attendance and Program Completion. Attendance was analyzed as a percentage of total classes attended. The total number of classes is seven for participants who attended HOT DOCS before April 2020 and six for those who attended from April 2020 and onward. Course completion was analyzed as a categorical variable, either program completers or dropouts. Participants who attended before April 2020 were considered program completers if they attended at least five or more classes. Participants who attended during or after April 2020 were considered program completers if they attended at least four or more classes.

HOT DOCS Demographic Questionnaire-Parent/Caregiver. The HOT DOCS Demographics Questionnaire-Parent/Caregiver version was created by the developers of HOT

DOCS to gather demographic information on participants. This questionnaire is comprised of an adult participant section and a child information section. The adult participant section contains items concerning the caregiver's name, date of birth, gender, address, race, ethnicity, household structure, highest level of education, number in household, primary language, relation to the child, marital status, current employment, and yearly household income. The child information section contains items relating to the child's name, date of birth, gender, race, ethnicity, and school status. This questionnaire was sent through Qualtrics to participants to complete prior to the first class. Those caregivers who did not complete the online version were provided with a physical copy to complete at the first class. The questionnaire is available in English and in Spanish. A copy of this questionnaire can be found in Appendix A.

Eyberg Child Behavior Inventory. The Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999), a 36-item standardized scale, was used to measure intensity of preintervention child behaviors. The ECBI is a parent-reported survey of disruptive problems in children of 2-16 years. It is used in HOT DOCS, other PMT programs, a variety of research studies, and in clinics (Calzada et al., 2004; Feinfield & Baker, 2004; Shuhmann et al., 1998). Caregivers rate how often a behavior occurs on a seven-point Likert scale with qualitative descriptors ranging from "Never" to "Always" (Intensity scale). Caregivers endorse whether they consider the behavior to be a problem (yes/no, Problem scale). The raw clinical cutoff scores are 132 for the Intensity scale and 15 for the Problem scale (Calzada et al., 2004; Shuhmann et al., 1998). Internal consistency alphas was found to be .91 for boys and .92 for girls on the Problem Score and .94 for boys and .93 for girls on the Intensity Scores in a sample of 2,527 parents with children ages 2-17 years old (Burns & Patterson, 2001). The correlation between the two score was .74 for the total sample (Burns & Patterson, 2001). Additionally, the

ECBI was re-standardized using a sample of 798 children in order to gather standardized data for the general child and adolescent population (Eyberg, Colvin, & Adams, 1999).

DOCS Parenting Stress Measure. Parenting stress data were collected through the DOCS Parenting Stress Measure (DOCS PSM). The DOCS PSM was adapted by a team at the University of Massachusetts Amherst from the Autism Parenting Stress Index (Silva & Schalock, 2011). The measure contains 17 items and caregivers are asked to rate on a five-point Likert scale how much stress either child behaviors or aspects of raising a child with behavioral problems causes themselves and/or the family. Ratings include 0=Not Stressful, 1=Sometimes Creates Stress, 2=Often Creates Stress, 3=Very Stressful on a Daily Basis, and 4=So Stressful Sometimes You Feel You Can't Cope. An example of a child behavior item caregivers are asked to rate includes "Your child's tantrums/meltdowns." An example item concerning aspects of raising a child with disruptive behaviors is "The financial resources parenting your child takes." Raw scores on the measure range from 0-68, with higher scores indicating more parenting stress. Caregivers complete the measure either before or at the first class and again at the end of the final class. A copy of this questionnaire can be found in Appendix B.

The Autism Parenting Stress Index (APSI; Silva & Schalock, 2011) was developed to determine the effects of a five-month, parent delivered intervention for young children with Autism Spectrum Disorder (ASD) on reducing parenting stress. The measure was designed to be used in clinical settings to identify areas of parenting where caregivers needed support and to assess the effects of interventions on parenting stress (Silva & Schalock, 2011). The items were developed through an iterative process by reviewing a series of 100 interviews in which caregivers were asked to discuss areas of their child's functioning that caused stress as well as identifying the three most stressful areas (Silva & Schalock, 2011). Three categories emerged

from this process: core social disability, difficult-to-manage behavior, and physical issues. The measure was validated using a sample of 274 children under six years of age. Of these 274 children, 107 had a diagnosis of ASD, 28 had other developmental delays (other DD), and 139 were typically developing. Ages of the children ranged from 24 to 72 months. Factor analyses were conducted to evaluate the relationship between items and the nature of stressors for children with ASD. The first factor represented a broad dimension of core social and communication deficits and contained loadings for social development, communication, feeling close to the child, acceptance by others, and future independence. The second factor represented co-morbid behaviors in ASD and included tantrums/meltdowns, aggressive behaviors, self-injurious behaviors, and difficulties with transitions. Two factors emerged relating to physical co-morbid symptoms of ASD: bowel problems and toilet training delays and sleep and diet/appetite problems.

The APSI was internal consistency and test-retest reliability. The Cronbach's Alpha for typically developing children was .834 (Silva & Schalock, 2011). See Table 4 for overall alphas and alphas at the construct level. The test-retest reliability coefficient was .882 (Silva & Schalock, 2011).

Table 4. *Internal Consistencies for the Autism Parenting Stress Index*

	Cronbach's Alpha			
	Reliability for ASD Group	Reliability for Typically Developing Group	Reliability for other DD group	Number of Items
Overall Parental Stress Scale	.827	.834	.732	13
Core ASD Symptoms	.792	.703	.659	5
Co-morbid Behaviors	.758	.710	.845	4
Co-morbid Physical Issues	.667	.650	.141	4

The APSI was found to discriminate between children with ASD, children with other DD, and typically developing children. When the Core ASD factor was examined, it was

revealed that nearly 60% of parents of children with ASD indicated being stressed in this area, while only 32.9% of parents of children with other DD and 3.5% of parents with typically developing children endorsed being stressed in this area (Silva & Schalock, 2011). See Table 5 for prevalence of stress in each factor for all parents. While the APSI was found to discriminate among parents with children of different developmental levels, it should be noted that the majority of parents endorsed significant stress concerning social development, communication, tantrums/meltdowns, transitions, diet, acceptance, and future independence. These issues are not unique to children with ASD. This lends support for the co-morbid behavior and co-morbid physical symptoms factors being good measures of parenting stress related to parenting issues that any parent may experience. Overall, the APSI was determined to be a reliable instrument to measure parenting stress in young children.

Table 5. *Prevalence of Stress by Factors of the Autism Parenting Stress Index*

	Stress Ratings					
	Not Stressful (%)	Sometimes Creates Stress (%)	Often Creates Stress (%)	Very Stressful on a Daily Basis (%)	So Stressful Sometimes We Feel We Can't Cope (%)	Prevalence of Stress (%)
Overall Scale						
Typically Developing	68.7	24.2	5.1	1.4	.6	7.1
ASD	24.4	25.2	20.7	19.3	10.4	50.4
Other DD	48.4	28.0	11.8	19.2	1.6	23.6
Core ASD Behaviors						
Typically Developing	78.3	18.3	2.6	.7	.1	3.5
ASD	16.4	23.7	24.5	23.9	11.4	59.8
Other DD	35.0	32.1	19.3	12.1	1.4	32.9
Co-morbid Behaviors						
Typically Developing	44.3	27.1	6.2	1.6	.9	8.6
ASD	20.2	23.7	15.1	13.3	7.7	36.1
Other DD	45.0	23.6	4.3	5.7	1.4	11.45
Co-morbid Physical Issues						
Typically Developing	56.0	17.7	4.5	1.3	.6	6.3
ASD	26.9	17.9	14.2	13.1	7.9	35.1
Other DD	45.0	17.1	7.1	8.6	1.4	17.1

A team of researchers adapted the APSI for use in the HOT DOCS program. The scale used examples from the APSI that aligned with skills and examples used in the HOT DOCS program and omitted ASD related items. The adapted measure was used in a HOT DOCS study that took place in a school setting (Donnelly, Fefer, Hareli, Santiago-Rosario, 2018). The measure was used to assess the effects of HOT DOCS on parenting stress in a sample of twenty-six parents. The researchers obtained a Cronbach's alpha of .91 for the adapted scale. A significant decrease in parenting stress from pretreatment (*M=39.33; SD=13.28)* to posttreatment (*M=34.33; SD=12.42)* with an effect size of .52 (Donnelly et al., 2018) was reported. This measure was chosen for the current study given the reliability of the original measure and the high alpha of the adapted scale, as well as the fact that the adapted version aligns well with the goals of HOT DOCS. The current study provided additional data regarding the psychometric properties of this measure. Additionally, this study examined the correlation between pretest scores on the DOCS-PSM and pretest ECBI scores, for the purpose of comparing scores to an established measure and determining relationships between DOCS-PSM scores and intensity of behaviors.

Data Analysis

Preliminary Analysis. Descriptive statistics were reported for attendance and pre/post scores of the DOCS-PSM, which include means, standard deviations, and range of scores. The data set was screened for missing data. ECBI Intensity scores were used to report the intensity of problem behaviors for the sample. Difference scores were calculated to measure changes in parenting stress. Pretest HOT DOCS-PSM scores were subtracted from posttest HOT DOCS-PSM scores for each participant as well as for the mean of the sample.

Attendance was measured in number of classes attended. Participants were categorized as either program completers or dropouts based on the criteria discussed above. The proportion of the those who completed the course were calculated by dividing the total sample by the number of participants completed.

Intraclass correlation coefficients (ICC) were calculated for pretreatment parenting stress, posttreatment parenting stress, difference scores of parenting stress, program completion, and number of classes attended to determine whether single level or multilevel analysis were required. The ICC provides an estimate of how much responses differ between class groups for each variable. If the ICC is higher than 5%, it indicates a large amount of variation between groups is present and multilevel modeling is required (Nezlek, 2011; Goldstein, 2011; Heck and Thomas, 2015). The ICC was found to only be above 5% for number of classes attended, thus multilevel analysis were used to answer research question four.

Dependent Measure T-Test. A dependent measure t-test was conducted to determine if there was a change in parenting stress from pretreatment to posttreatment for those that complete the HOT DOCS course. The pretreatment and posttreatment mean parenting stress scores was calculated for those participants considered to be completers using the above criteria. The dependent variable was the mean scores on the HOT DOCS-PSM. A test for normality was conducted to ensure the difference between scores are normally distributed. The dependent measure t-test tested the null hypothesis that there is no change in parenting stress scores from pretreatment to posttreatment. If a statistically significant difference is found between the pretreatment and posttreatment parenting stress scores, the null hypothesis may be rejected.

Regression Analyses. Logistic regression analysis was used to determine the relationship between pretreatment parenting stress scores and completion of HOT DOCS. Logistic

regression is useful when the dependent variable is categorical. In this study, the dependent variable was completion of the HOT DOCS course. Participants fell into one of two categories: Completers (attended four or more sessions) or Non-completers (attended three or less sessions). Pretreatment parenting stress scores on the HOT DOCS-PSM served as the predictor variable in this regression. Regression analysis assumes independence. Violating this assumption runs the risk of inaccurate results. As discussed above, some scores of the HOT DOCS-PSM may be related as caregivers that were parenting together completed measures individually for their shared child. However, individuals experience stress differently. What may be stressful to one caregiver, may not be perceived as stressful to another. For this reason, the scores can be assumed to be independent. Additionally, intraclass correlations revealed little variance between different class groups.

Hierarchal Linear Modeling. Hierarchal linear modeling (HLM) was used to determine the relationship between pretreatment parenting stress and number of classes attended. A random intercept model was run to determine the model without any predictors added. A random-intercept with a fixed predictor was then run to determine the predictive value of the level one predictor variable. The dependent variable was number of classes attended by participants (continuous) and the predictor variable was the pretreatment scores on the HOT DOCS-PSM. Participants are nested within different class groups. The level one outcome score was number of classes attended by the participant. Pretreatment parenting stress scores served as the level one predictor.

Ethical Considerations

The current study was part of a larger HOT DOCS study that was approved by the Institutional Review Board of the University of South Florida. The author of the current study

was a team member of the larger study. The current study was considered to have minimal risk to participants. All participants were provided a HOT DOCS identification number to use on forms and electronic forms, thus de-identifying the participants. The data were entered into a database on secure server. This researcher was only provided with the de-identified information and had no means of matching the information to participant names. All physical data were stored in locked filing cabinets in locked rooms. All individuals consented to have their information used for research purposes. Participants were given the option to not consent to having their information used for research purposes and were told their decision would have no impact on their eligibility to attend the class.

Chapter Four

Results

Overview

The purpose of the current study was to examine the predictive value of pretreatment parenting stress scores on attendance and completion of the HOT DOCS program. In addition, the current study determined if there was a change in parenting stress scores for participants who completed the program. Finally, the current study provided current attrition data for the HOT DOCS program.

Research Questions

1. What proportion of HOT DOCS participants drop out after attending at least one class?
2. Is there a change in parenting stress for those who complete the HOT DOCS course?
3. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and completion of HOT DOCS?
4. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and number of HOT DOCS classes attended?

Participant Variable Coding

Variables were collected from a de-identified version of the HOT DOCS research database and entered as either a numerical value for the variable or assigning a code number

to represent a category. All variables were entered and analyzed using IBM SPSS Statistics 26 (IBM Corp, 2019).

Variables entered as numerical values represented the actual value of the variable and included age, number of adults in the home, number of children in the home, number of classes attended, pre- and post-treatment parenting stress scores, and pre- and post-treatment ECBI intensity scores. Data representing age and number of adults and children in the home were gathered from the HOT DOCS Demographic form. Age was entered as number of years. Pre- and post-treatment stress scores came from the DOCS Parenting Stress Measure. Pre- and post-treatment intensity scores came from the ECBI. Some participants were attending classes due to concerns about multiple children in the home and completed individual copies of the ECBI for each child. For the purpose of analysis, the mean ECBI score was taken from all scores if the participants completed an ECBI for more than one child.

Gender, ethnicity, race, and primary language were gathered from the HOT DOCS Demographic form. Gender was coded as 1=Male, 2=Female, or 3=Prefer not to answer. Ethnicity was coded as 1=Hispanic, 2=Not Hispanic or Latino, or 3=Prefer not to answer. Race was coded as 1=White, 2=Black or African American, 3=American Indian or Alaska Native, 4=Asian, 5=Native Hawaiian or other Pacific Islander, 6=Two or more races, or 7=Prefer not to answer. Primary Language was coded as 1=English, 2=Spanish, 3=Haitian-Creole, 4=Prefer not to answer, 5=English and Spanish, 6=Other. The code of 5=English and Spanish was created for participants who marked other, but wrote in English and Spanish.

Household structure, relation to child, and marital status data were taken from the HOT DOCS Demographic form. Household structure was coded as 1=Dual 2 Parent

Household, 2=Male (Single) Head of Household, 3=Female (Single) Head of Household, 4=Other Relative/Kinship Care (Single), 5=Dual 2 Other-Relative/Kinship Care, or 6=Prefer not to answer. Relation to child was coded as 1=Biological Parent, 2=Grandparent, 3=Adoptive Parent, 4=Foster Parent, or 5=Other. Marital Status was coded as 1=Married, 2=Separated, 3=Single, 4=Widowed, 5=Divorced, or 6=Other.

Education, income, and employment status were gathered from the HOT DOCS Demographic form. Highest level of Education was coded as 1=Some or no high school, 2=High school graduate or GED, 3=Technical certificate, 4=Some college, 5=Associates Degree, 6=Bachelor's Degree, 7=Advanced Degree, or 8=Prefer not to answer. Yearly Household Income was coded as 1=$0 to 9,999; 2=$10,000 to 24,999; 3=$25,000 to 34,999; 4=$35,000 to 49,999; 5=$50,000 and above; 6=Prefer not to answer. Current Employment was coded as 1=Full-time, 2=Part-time, 3=Not Employed, 4=Prefer not to answer.

The variable Class Group Attended refers to the specific class the participant attended. A total of 32 groups were identified and labeled based on the month and year the class started and the location the class was held (See Table 6). Program Completion was coded as 1=Yes, or 2=No.

Table 6. *Breakdown of Participants by HOT DOCS Classes*

	N (%)
Class	
Oct2018-A	6 (2.6)
Oct2018-B	10 (4.3)
Oct2018-C	6 (2.6)
Oct2018-D	8 (3.4)
Jan2019-A	3 (1.3)
Jan2019-B	9 (3.8)
Jan2019-C	7 (3)
Jan2019-D	7 (3)
Apr2019-A	7 (3)
Apr2019-B	10 (4.3)

Table 6. *Breakdown of Participants by HOT DOCS Class* (Continued)	
Apr2019-C	11 (4.7)
Apr2019-D	2 (.9)
Jun2019-A	5 (2.1)
Jun2019-B	11 (4.7)
Aug2019-A	9 (3.8)
Aug2019-B	11 (4.7)
Aug2019-C	5 (2.1)
Oct2019-A	7 (3)
Oct2019-B	3 (1.3)
Oct2019-Ct	10 (4.3)
Jan2020-A	6 (2.6)
Jan2020-Bt	4 (1.7)
Jan2020-C	12 (5.1)
Apr2020-At	8 (3.4)
Apr2020-Bt	4 (1.7)
Apr2020-Ct	1 (.4)
Apr2020-Dt	7 (3)
Jun2020-At	20 (8.5)
Jun2020-Bt	5 (2.1)
Jun2020-Ct	2 (.9)
Aug2020-At	13 (5.5)
Aug2020-Bt	6 (2.6)

Note: t indicates the class was held via telemedicine; total sample size=235

Preliminary Analysis

Missing Data. Cases of missing data were identified for pretreatment parenting stress scores, posttreatment parenting stress scores, number of classes attended, and program completion as these data were used to answer the research questions. For the entire sample (N=235), there were five cases with no pretreatment parenting stress data. Of those participants who completed the HOT DOCS program (n=212), 30 cases were missing posttreatment parenting stress scores. There were no missing data for number of classes attended or program completion. Listwise deletion was used to handle the missing data.

Pretreatment Parenting Stress and Intensity of Child Behaviors. Pretest parenting stress scores ranged from 0 to 67 for the sample, with a group mean score of 20.28 and standard deviation of 11.30. Scores on the DOCS Parenting Stress Measure ranged from 0 indicating no stress to 68 indicating maximum amount of stress as rated by the scale. The HOT DOCS program uses a cutoff score of 17 to indicate a parent is experiencing more stress than a parent with a typically developing child. Thus, a mean score of 20.28 indicates that participants in the sample are experiencing more parenting stress than would typically be expected.

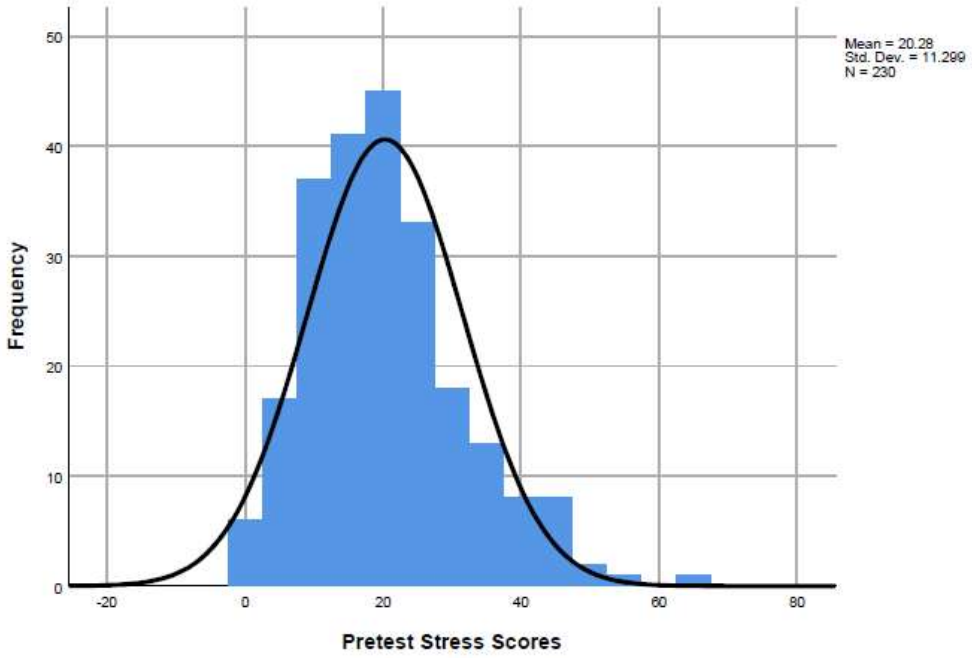

Figure 1. Pretreatment Parenting Stress Scores

The mean raw score for pre-treatment ECBI Intensity was 128.04 with a standard deviation of 35.14. This mean score is below the clinical cutoff score of 132, indicating the sample on average was experiencing below clinical levels of disruptive behaviors in their children. ECBI Intensity scores for the sample ranged from 36 to 221.

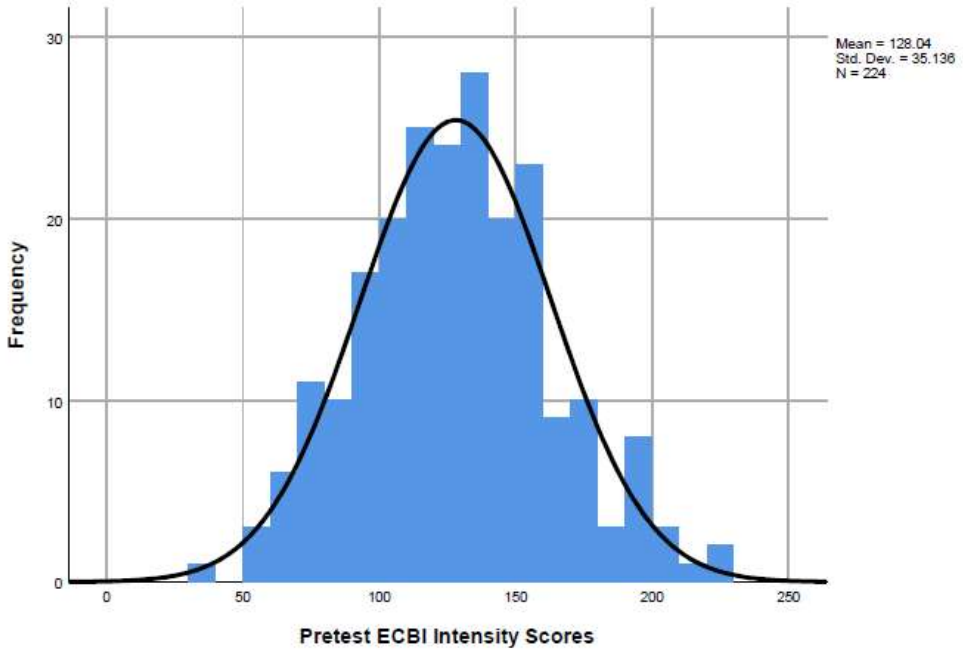

Figure 2. *Pretreatment ECBI Intensity Scores*

Table 7. *Pretreatment Stress and ECBI Means for the Sample*

	Minimum Value	Maximum Value	Mean	Standard Deviation
Pretest Stress Scores	0	67	20.28	11.30
Pretest ECBI Intensity Scores	36	221	128.04	35.14

A scatter plot was constructed using pretreatment parenting scores and pretreatment ECBI scores to determine if a linear relationship existed between the two sets scores. Figure 3 displays the positive linear relationship between the two variables, with pretreatment parenting stress scores generally increasing as pretreatment ECBI scores increased. A two-tailed Pearson Correlation analysis was run using pretest parenting stress scores and pretest ECBI Intensity scores. Results revealed a significant, moderate positive correlation between pretreatment parenting stress scores and pretreatment ECBI Intensity scores (r =.457, p =<.001) at the .01 level. Participants who had children with more intense behaviors reported higher levels of parenting stress. This finding provides more validity for the DOCS Parenting Stress Measure as

this aligns with research finding a correlation between severity of child's behaviors and levels of parenting stress. Furthermore, the DOCS Parenting Stress Measure indicated a high level of internal consistency in this population with a Cronbach's Alpha of .805.

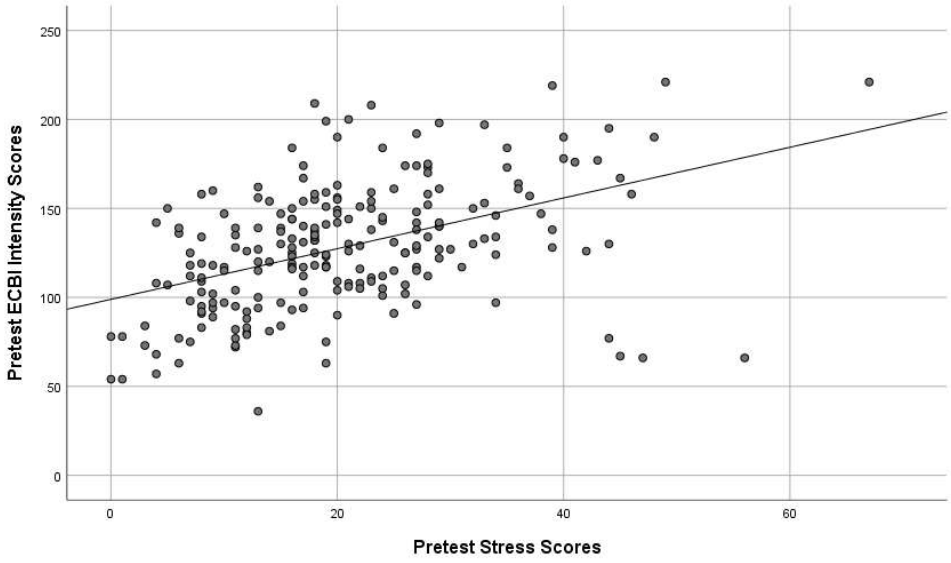

Figure 3. *Scatter Plot of Pretreatment Parenting Stress and ECBI Intensity Scores*

Intraclass Correlation. Intraclass correlation was conducted to determine if there was a significant amount of variance between class groups when it came to pretreatment parenting stress scores, posttreatment parenting stress scores, program completion, and number of classes attended. The interclass correlation for pretreatment parenting stress (3.2%), posttreatment parenting stress (2.2%), program completion (2.5%), and difference scores of stress (3.3%) were all less than 5%. The intraclass correlation for number of classes attended was 14.4%. An ICC greater than 5% is thought to provide more information than using a simple regression model, so multilevel modeling is appropriate (Nezlek, 2011; Goldstein, 2011; Heck & Thomas, 2015). Based on these results, multilevel analysis was only used for research question four.

Primary Analysis

Research Question One. What proportion of HOT DOCS participants drop out after attending at least one class?

A participant was considered to have dropped out of the HOT DOCS program if they did not meet the attendance criteria for program completion (i.e., five or more classes before April 2020 and four or more classes during or after April 2020). The mean number of classes attended for the sample was 5.96 with a standard deviation of 1.26. In this sample of 235 participants, only 23 participants did not meet attendance criteria for program completion, meaning roughly 10% of participants dropped out of the HOT DOCS program.

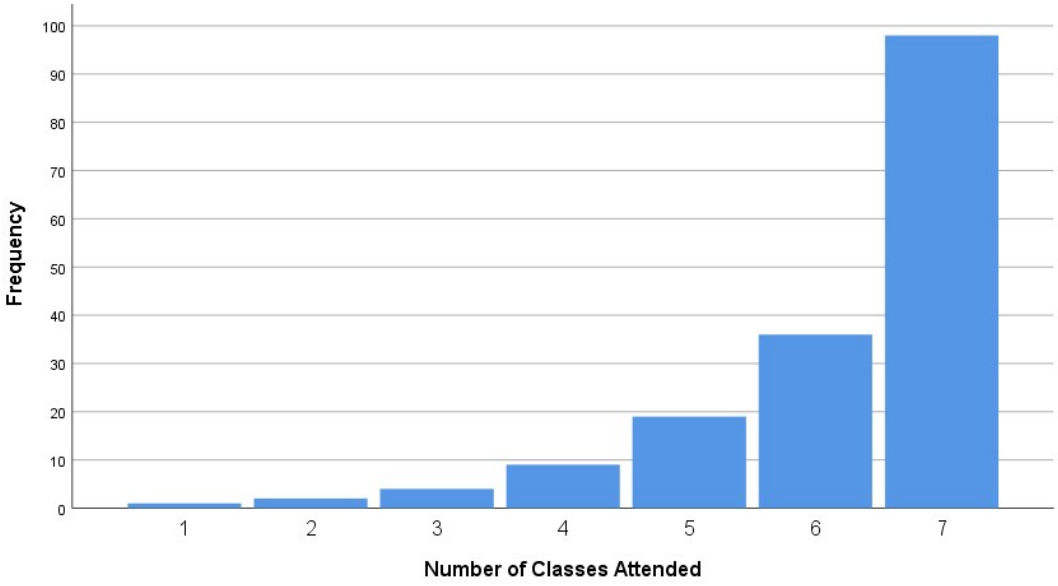

Figure 4. *Number of Classes Attended by Participants Enrolled in HOT DOCS between Oct 2018 and March 2020*

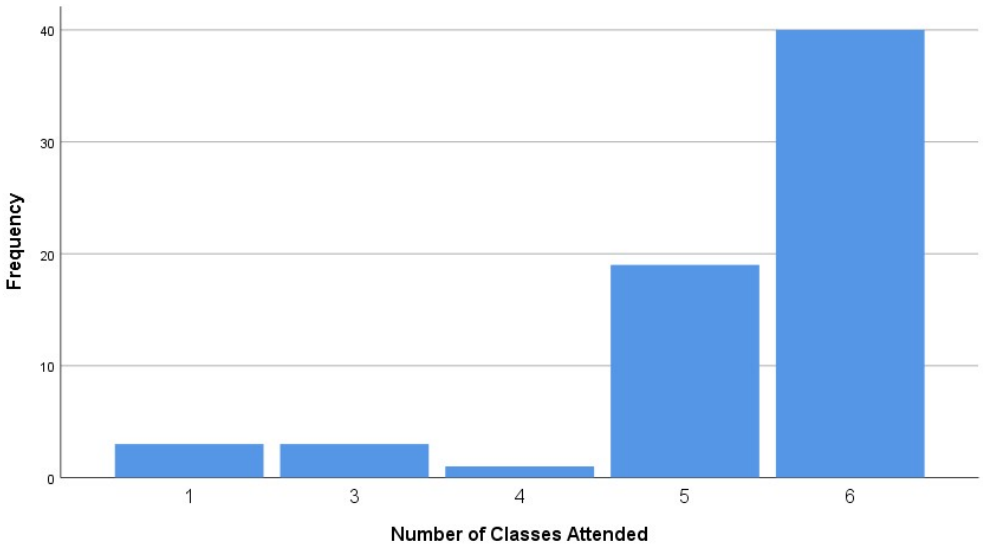

Figure 5. *Number of Classes Attended by Participants Enrolled in HOT DOCS During or After April 2020*

Research Question Two. Is there a change in parenting stress for those who complete the HOT DOCS course?

A dependent measure *t*-test was performed to test the hypothesis that pretreatment parenting stress means (M=19.95; SD=10.879) and posttreatment parenting stress means (M=15.96, SD=9.607) were equal. Boxplots were used to detect outliers. Two outliers were detected that were more than 1.5 box lengths from the edge of the box in a boxplot. Inspection of their values did not reveal them to be extreme and they were kept for analysis. The assumption of normally distributed difference scores was considered satisfied, as the skew was estimated to be .520 and the kurtosis levels were estimated to be 1.108, which are considered acceptable (George & Mallery, 2010).

The correlation between the paired samples is estimated at r=.670, p <.001. The null hypothesis of no change in parenting stress means was rejected, $t(181)$=6.403,p<.001. Those who completed HOT DOCS experienced a mean decrease of 3.989 points on the DOCS Parenting Stress Measure. Thus, the posttreatment parenting stress mean was statistically

significantly lower than the pretreatment parenting stress mean. Cohen's *d* was estimated at .5, which is considered a medium effect size (Cohen, 1992). Figure 6 displays the means and adjusted 95% confidence intervals (Loftus & Masson, 1994).

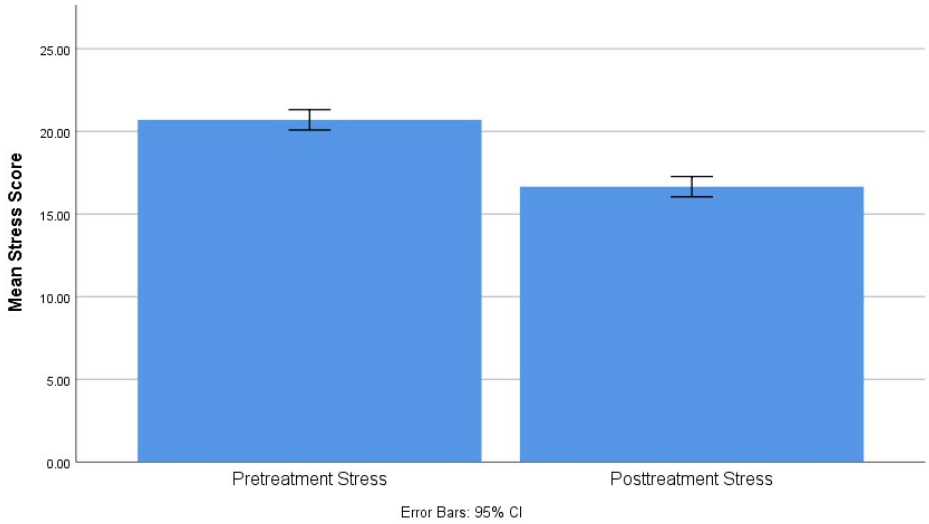

Figure 6. *Means and 95% Confidence Intervals for Pre- and Post-treatment Parenting Stress*

Research Question Three. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and completion of HOT DOCS?

A logistic regression analysis to investigate the relationship between pretreatment parenting stress and program completion of HOT DOCS was conducted. The dependent variable was program completion. The predictor variable was pretreatment stress score. Based on the Box-Tidwell (1962) procedure, pretreatment parenting stress scores were found to be linearly related to the logit of the dependent variable. There were 21 cases with standardized residual values greater than 2.5 standard deviations. These cases were included in the analysis as all 21 cases were the participants who did not complete the program. Removing these cases would have resulted in only participants that completed the course being used for analysis. A total of 228 cases were used for the analysis due to seven cases of missing pretreatment parenting stress

data. The logistic regression model was not statically significant (See Table 8). The model explained .9% (Nagelkereke R^2) of the variance in program completion. The odd ratio was not significant. Thus, pretreatment parenting stress is not a significant predictor of program completion.

Table 8. *Logistic Regression Predicting Likelihood of Program Completion Based on Pretreatment Parenting Stress*

							95% CI for Odds Ratio	
	B	S.E.	Wald	*df*	*p*	Odds Ratio	Lower	Upper
Pretreatment Stress Scores	.019	.019	.946	1	.331	1.019	.981	1.057
Constant	-2.692	.483	31.081	1	.000	.068		

Research Question Four. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and number of HOT DOCS classes attended?

Hierarchal linear modeling (HLM) was utilized to address research question four. Participants were nested within different classes, making level one (within level) the participants and level two (between level) the class groups. See Table 9 and 10 for results of the analysis. The grand mean (intercept) of number of classes attended was 5.9. The estimate of the fixed effects of pretreatment parenting stress on number of classes attended was .001579, which was not statistically significant (b=.001579, S.E.=.006897, p>.001). The residuals at both level one and two were significant indicating the variance of numbers of classes attended within individuals and between groups is not explained by pretreatment parenting stress alone. This suggests that more predictors need to be added to the model to explain variation in number of classes attended at the two levels. Thus, pretreatment parenting stress was not found to be a significant predictor of number of classes attended.

Table 9. *Estimates of Fixed Effects in HLM for Number of Classes Attended*

						95% Confidence Interval	
Parameter	Estimate	Std. Error	df	t	Sig.	Lower Bound	Upper Bound
Intercept	5.939028	.186730	117.309	31.805	.000	5.569230	6.308826
Pre-Stress	.001579	.006897	219.715	.229	.819	-.012013	.015171

Note: Dependent Variable=Number of Classes Attended.

Table 10. *Estimates of Covariance Parameters in HLM for Number of Classes Attended*

						95% Confidence Interval	
Parameter		Estimate	Std. Error	Wald Z	Sig.	Lower Bound	Upper Bound
Residual		1.261360	.125620	10.041	.000	1.037689	1.533243
Intercept [subject = Class Group]	Variance	.284461	.116793	2.436	.015	.127215	.636073

Note: Dependent Variable=Number of Classes Attended.

Summary of Results

In summary, this sample of 235 participants was made up of mostly White females. The sample could be considered higher SES as the majority of participants held a bachelor's degree or higher and reported an annual income of $50,000 or above. Most participants were married and attending the course for their biological child. The sample reported levels of pretreatment parenting stress (*M*=20.28, *SD*=11.30) that are higher than those expected for parents with typically developing children and low intensity of behaviors according to the ECBI (*M*=128.04, *SD*=35.14). Approximately 10% of participants dropped out of the program before meeting program completion criteria. For those participants who completed the course, a medium and statistically significant reduction in pretreatment parenting stress was found. Finally,

pretreatment parenting stress was not found to be a significant predictor of either program completion or number of classes attended.

Chapter Five

Overview

The purpose of this study was to investigate the predictive value of pretreatment parenting stress on attendance and program completion in HOT DOCS. In addition, this study examined the change in parenting stress from pretreatment to posttreatment for participants who completed the program and provided updated attrition data for HOT DOCS. This chapter will provide a discussion of the results, implications for practice, and contributions to the existing literature. Limitations and considerations for future research also will be discussed.

Discussion of the Results

Research Question One. What proportion of HOT DOCS participants drop out after attending at least one class?

This study found that 9.8% of participants during the time frame under investigation dropped out from HOT DOCS. Conversely, 90.2% of the sample met criteria for program completion. This attrition rate is much lower than the reported attrition rate of child mental health services (40-60%; Kazdin, 1996). Specifically, parent management training (PMT) programs have been found to have an attrition rate of 26% (Chacko et al., 2016). The previous attrition rate for the HOT DOCS program, based on data from August 2006 to March 2010 was 13.4% (Ogg et al., 2014). Thus, the attrition rate for HOT DOCS found in this study is lower when compared to PMT programs as a whole and compared to a prior study of HOT DOCS.

One hypothesis for the low attrition rate of participants in the HOT DOCs program may be attributed to changes in program management as a result of grant funding in 2017. This funding provided additional resources that allowed HOT DOCS to focus on participant retention. For example, the program added a program coordinator with a direct phoneline. The duties of this program coordinator include registering participants, answering questions about the program, reaching out to participants who miss a class, and scheduling one-on-one make up classes for participant who miss a class. New procedures also were enacted when a participant misses a class without prior notification. An email is sent the day after the missed the class. If there is no response to the first email, a second email is sent or the participant is contacted via phone call. The ability to provide make up classes during the intervening week for participants who are unable to attend the scheduled class also is a new feature of HOT DOCS. There are multiple instructors within the program who are able to provide these make up sessions, which allows for flexibility with participants' schedules.

The barriers-to-treatment model (Kazdin et al., 1997) states that the more barriers experienced by a family/participant the more likely they will be to miss appointments and eventually drop out of treatment. These barriers may be (1) stressors and obstacles that compete with treatment (e.g., partner refusal to attend, demands and problems of other children), (2) treatment demands and issues (e.g., clarity or length of treatment), (3) perceived relevance of treatment (e.g., parent's expectations, parent's view of the importance of treatment), and (4) relationship with the therapist (e.g., alliance and bond with the therapist). The retention efforts described above may help to reduce barriers to treatment for participants. By providing make up sessions for those who miss a scheduled class, the program may be helping to reduce the barriers caused by busy and often unpredictable schedules of caregivers. Having someone reach out to

those participants who miss a class without prior notification may help improve the relationship between those participants and the instructors/program. It could be that the participants feel valued or cared for, thus motivating them to attend. The benefits of these retention efforts for the HOT DOCS program would be an interesting line of future study.

Research Question Two. Is there a change in parenting stress for those who complete the HOT DOCS course?

A statistically significant reduction in mean parenting stress with a medium effect size was observed for participants who completed the HOT DOCS program. The mean difference from pretreatment (M=19.95; SD=10.879) to posttreatment (M=15.96, SD=9.607) was 3.99. A Cohen's d of .5 indicates a medium effect size (Cohen, 1992). These results differ from a prior HOT DOCS study that found no change in stress immediately following treatment (Childres et al., 2011). This difference in results could be explained by the measure chosen to assess stress in these two studies. The stress measure used in the Childres and colleagues study (2011) was not specific to parenting stress. The DOCS Parenting Stress Measure (DOCS PSM) utilized in the current study is more specific to the stressors related to raising a child with difficult behaviors. Thus, the DOCS PSM may be more sensitive to the effects of the HOT DOCS program as compared to a more global measure of stress.

These findings align with previous research on PMT and parenting stress (Brooker et al., 2018; Cooley et al., 2014; Niec et al., 2016). Brooker and colleagues (2018) found that maternal stress was indirectly reduced by children's positive reports of their parents. Positive parent-child relationships resulted in reduced behaviors, which resulted in less maternal stress (Brooker et al., 2018). The intervention used in that study was the Parent Management Training program (PMT; Kazdin, 2005). The goal of the current study was to determine whether or not a change in

parenting stress occurred for those who completed HOT DOCS. However now that a reduction in parenting stress has been observed, future research could focus on why this change is occurring. It would not be unreasonable to attempt to apply the results of Brooker et al. (2018) to HOT DOCS. HOT DOCS teaches participants positive parenting practices that are similar to Kazdin's (2005) PMT program. For instance, both programs focus heavily on positive reinforcement and identifying antecedent, behaviors, and consequences. These strategies help to reduce conflict in the home and improve parent-child relationships. HOT DOCS includes an additional component that focuses on the parent-child relationship in the form of daily special play. Given the similarities between programs, investigating the relationship between parent-child relationships and parenting stress in HOT DOCS is a viable line of future research.

Studies that have used PCIT (Brinkmeyer & Eyberg, 2003) as the primary intervention and examined parenting stress as a primary outcome also have found reductions in parenting stress following program completion (Cooley et al., 2014; Niec et al., 2016). In a meta-analysis conducted by Cooley et al (2014), PCIT was found to have moderate to large effect sizes for reducing parenting stress. Large effect sizes in parenting stress reduction also was observed in participants of the Niec et al. (2016) study. That study compared group PCIT to traditional PCIT and found group PCIT to be as effective as traditional PCIT. Effect sizes for reducing parenting stress were large for both groups (Niec et al., 2016). The current study aligns with these two PCIT studies in two ways. First, the current study also found statistically significant reductions in parenting stress following program completion. Second, the current study provided more evidence of positive outcomes associated with group-based parenting treatments.

A hypothesis for this difference in study findings could be related to the target populations of these different programs. Specifically, PCIT can be thought of as a tier three

intervention. PCIT is often recommended for caregivers of children with clinically significant levels of disruptive behaviors. More severe levels of child disruptive behaviors are associated with higher levels of parenting stress. Thus, the recipients of PCIT are likely to be more stressed than the average parent. On the other hand, HOT DOCS could be considered more of a tier one or tier two intervention. HOT DOCS is advertised as a problem-solving approach for everyday needs and behavior problems. Although HOT DOCS includes similar concepts as PCIT such as behavior specific praise, providing clear directions, and using reinforcement/punishment, it does not provide the same level of intensive practice and coaching as compared to PCIT. The reason for this is that HOT DOCS is not limited to only children with clinical disruptive behavior disorder. As this study found, at pretreatment the sample reported an ECBI Intensity group mean below clinical significance (M=128.73, SD=34.040) meaning the sample as a whole was not experiencing high levels of intense behavior problems. Due to the low levels of intense behaviors, the stress experienced by the sample may not have been as severe as it may have been had more of the sample been parents of children with clinically significant levels of behaviors. The lack of more intense cases in this study make it difficult to know whether higher levels of pretreatment stress would change the effect size. An interesting avenue for future HOT DOCS research would be to examine the difference in changes in stress between those with clinically significant levels of behaviors and stress and those without.

Research Question Three. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and completion of HOT DOCS?

Pretreatment parenting stress was not found to be a significant predictor of completion of the HOT DOCS program. These findings align with the results of previous studies (Fernandez & Eyberg, 2009; Patenaude, 2011). In their study examining attrition in PCIT, Fernandez and

Eyberg (2009) found family SES and maternal verbalizations during parent-child interactions predicted completion or dropout, but not parenting stress despite it previously being a predictor of dropout from PCIT. The authors hypothesized that the addition of a short parent support component at the beginning of PCIT treatment sessions contributed to parenting stress no longer being a significant predictor of attrition (Fernandez & Eyberg, 2009). HOT DOCS has a parent support component built into sessions as well. Beginning with class 2, a portion of class time is dedicated to discussing the events of the previous week, problem solving any issues that arose with the parenting tips or other skills, and modeling of skills using example situations from the participants. It is hypothesized that this support time, combined with the option to make up classes, eliminates many of the barriers to treatment that parenting stress may have caused.

Additionally, immediate acquisition of skills could be contributing to continued attendance and program completion. In general, when a family begins treatment at a clinic, the first few sessions are used to gather data to make informed decisions about how treatment should proceed. Although from a clinical perspective this time is valuable and needed for proper treatment, from the client's perspective it could seem like they have been in treatment for three weeks with no change when in reality the actual treatment has yet to begin. This may make clients feel as if they are still waiting for treatment, which is associated with later program attrition (Werba et al., 2006). In contrast, the HOT DOCS program begins explaining and teaching useful concepts and skills in the first class. Participants leave the first class with a skill they can try at home that will hopefully improve the home situation. Given there are no clinical guidelines for inclusion in HOT DOCS, it is difficult to address the individual needs of each participant. Although HOT DOCS may not be sufficient enough to treat all behaviors at all intensity levels, the skills being taught could be applied in almost any family. Immediate

improvements in behaviors, either large or small, may be reinforcing caregivers to continue until completion. Future research should examine the relationship between immediacy of treatment/useable skills and program completion.

However, the findings of the current study also contradicts previous literature which found connections between stress and program completion and attendance (Calam et al., 2002; Friars & Mellor, 2007; Kazdin & Mazurick, 1994; Werba et al., 2006). In the study by Calam and colleagues (2002), mothers who agreed to participate in treatment, but never attended a single appointment were found to have higher levels of parenting stress as compared to those who attended at least one treatment session. Data are not collected on individuals who contact HOT DOCS for information but do not register or for those who register and do not attend a single class. Thus, it is unknown what proportion of the eligible population actually end up registering and attending class. Rather than looking at who may have been missed, future research could focus on HOT DOCS as a way of preventing an escalation of behavior problems and preventing the need for more intensive services. It would be interesting to examine how many caregivers felt their child needed treatment prior to taking HOT DOCS and how their perceptions changed following posttreatment. Follow-up data also could be collected to see what proportion of HOT DOCS completers continue on to a more intense form of treatment.

Research Question Four. What is the relationship between pretreatment parenting stress as measured by the DOCS Parenting Stress Measure and number of HOT DOCS classes attended?

In line with previous research on HOT DOCS, pretreatment parenting stress was not found to be a significant predictor of the total number of classes attended by a participant. Patenaude (2011) found no difference between mean levels of perceived stress between

participants who attended two or less classes and those who attended three or more classes of HOT DOCS. Results from that study and the current study seem to indicate no significant relationship between pretreatment stress and number of classes participants attend. It is interesting to note that prioritizing parenting stress over global stress and changing the number of classes from a dichotomous to a continuous variable did not impact the significance. Patenaude (2011) suggested measuring number of classes on a continuous variable may show a significant relationship between pretreatment stress and number of classes attended. However, this current study found that not to be the case. Additionally, this author hypothesized that using a measure that was more attuned to parenting stressors versus stressors that may be experienced by anyone would result in a significant relationship. However, this study found that utilization of a parenting stress specific measure did not result in finding a significant relationship between pretreatment parenting stress and number of classes attended.

HOT DOCS is intended for families experiencing clinically and non-clinically significant levels of disruptive behaviors. Conceptually those participants who are experiencing low levels of disruptive behaviors could be considered to have low levels of parenting stress, while those experiencing high levels of disruptive behaviors would be expected to have high levels of parenting stress. The nature of HOT DOCS benefits both groups. For the low stress parents, seven classes may not seem like a large investment of time, especially when there is immediate payoff. Participants leave the first class of HOT DOCS with techniques that they can begin implementing right away. These low stress parents presumably have children with generally appropriate behaviors and may find the tips from the first few classes begin to extinguish any bourgeoning unwanted behaviors. Thus, they are reinforced to continue attending classes. For

the high stress participants, the immediacy of useable skills, as discussed above, could be contributing to attendance.

In the study conducted by Kazdin and Mazurick (1994), participants who were classified as early terminators reported higher levels of parenting stress than those who completed the course. However, the authors defined early terminators as those who attended for six weeks or less (Kazdin & Mazurick, 1994). HOT DOCS is only six weeks long in total. Perhaps the succinct nature of HOT DOCS counterbalances the effects of pretreatment stress or perhaps six weeks is considered a "digestible dose" of treatment regardless of pretreatment stress. More evidence for this claim can be found in the results of Werba et al. (2006), who found that being put on a waitlist was the most significant predictor of dropout. By providing immediate skills in a timely manner, HOT DOCS may be canceling out any negative effects pretreatment parenting stress may have on attendance. Future research could investigate the difference between brief treatments and more time intensive treatments.

Contributions to the Literature

This study contributes to the literature on PMT programs, stress, and attrition in two ways. First, this study provides more evidence for an association between completion of PMT programs and reductions in parenting stress. This study found a statically significant reduction in parenting stress for those who completed HOT DOCS. This finding aligns with previous research (Brooker et al., 2018; Cooley et al., 2014; Niec et al., 2016) that examined PMT programs and stress as a primary outcome. The finding of this study combined with previous research make a strong case for PMT programs as an effective method to reduce parenting stress.

Second, this study added to the body of literature that indicates pretreatment parenting stress is not a significant predictor of dropout or attendance. In line with previous studies

(Fernandez & Eyberg, 2009; Patenaude, 2011), this study did not find pretreatment parenting stress to be a significant predictor of dropout or attendance. The findings of this study contradict other studies (Calam et al., 2002; Friars & Mellor, 2007; Kazdin & Mazurick, 1994; Werba et al., 2006). However, when looking closer at the studies in contrast, those studies used versions of PMT programs that did not contain enhancements made to the programs to target stress and used different measures of stress. It seems when proper procedures are in place, the negative effects of pretreatment parenting stress are reduced or eliminated.

Clinical Implications

This study has many clinical implications for the HOT DOCS program. One is that the program staff can have more confidence in their parenting stress measure. This study was one of the first to utilize the DOCS Parenting Stress Measure (DOCS PSM). The measure was found to have a high level on internal consistency with a Cronbach's Alpha of .805. Additionally, there was a moderate and significant positive correlation between pretreatment parenting stress scores and pretreatment ECBI Intensity scores (r =.457, p =<.001) at the .01 level, meaning as parenting stress increased, so did the intensity of behaviors as reported by caregivers. These results give the HOT DOCS program staff more assurance that the DOCS PSM is measuring parenting stress, though further research on the measure is needed.

Another clinical implication for the HOT DOCS program would be to maintain their retention efforts. This study found a very low attrition rate (9.8%) of participants. This is much lower than the rates for child treatments, PMT programs, and previous HOT DOCS studies (Chacko et al., 2016; Kazdin, 1996; Ogg et al., 2014). A greater focus on retention efforts has been made in the past three years of the HOT DOCS program. It would seem that these retention efforts have demonstrated a positive outcome and should be maintained.

Finally, this study found that participants who completed HOT DOCS had a significant reduction in parenting stress. This is a novel finding as previous studies on HOT DOCS did not find significant changes in parenting stress (Childres et al., 2011) immediately following treatment. This finding is important for HOT DOCS as there is now evidence of an association between program completion and reduction in parenting stress.

Limitations

The current study is not without limitations. First, no data were collected on eligible participants of HOT DOCS who make contact but do not register, or those who register but do not attend a single class. Without these data it is impossible to determine rates of pretreatment attrition from HOT DOCS or parental stress levels of those individuals. However, these types of data are difficult to collect as HOT DOCS is not housed in a clinic where participants need to make appointments or be seen for an intake appointment.

Due to the sample generally less intense behaviors, it is difficult to generalize the findings of this study to populations with clinically significant levels of behavior problems. PMT programs are generally recommended for parents experiencing severe levels of disruptive behaviors from their children. Although it is just as important to have treatments available for all populations.

Finally, the current study did not compare the DOCS PSM to an established parenting stress measure. Although this study found promising results with the DOCS PSM, more research is needed on the validity and reliability of the measure.

Future Research

The results of the current study provide many avenues for future research. Given the high completion rate in this sample of HOT DOCS participants (90.2%), future research should

investigate contributions to the high rate. An obvious place to start would be with the new retention efforts implemented by HOT DOCS in the past years including hiring a program coordinator, follow-up contact for those who miss a class, and allowing for make-up sessions. It would be informative to see how many program completers utilize the opportunity to make-up sessions and how many follow-up calls program coordinators make per class. Further research could be conducted to identify those who would be more likely to take advantage of the retention procedures put in place. Another area of related interest would be to examine how a brief treatment model and providing immediate useable skills to participants influence continued engagement in HOT DOCS. Is there a threshold number of classes that stressed participants will attend? How much improvement is needed to reinforce continued attendance? These are questions that could all be explored further.

Given the significant reduction in stress observed in the current study, the next line of questioning would be to investigate how and why parenting stress decreases for those who complete HOT DOCS. One variable that has evidence in the research as having an effect on parenting stress is the parent-child relationship (Brooker et al., 2018). Research should be conducted to investigate the impact of HOT DOCS on the parent-child relationship. It is hypothesized that completing HOT DOCS improves this relationship as the program teaches many of the same skills used by other PMT programs. Improvements in the parent-child relationship could also explain why there is a change in stress even for those not experiencing clinical levels of parenting stress at pretreatment. Perhaps HOT DOCS improves communication between all parents and children, thus resulting in improved relationships for all who participate. The impact of HOT DOCS on the parent-child relationship warrants more research.

Future research should include comparing the outcome of HOT DOCS for participants who are experiencing clinically significant levels of parenting stress and behaviors and those who are not at clinically significant levels. First research would need to be conducted using the DOCS PSM to determine clinical cutoffs for the measure. It would be interesting to see if parenting stress becomes a significant predictor when more participants who report clinically significant levels of parenting stress are studied along with those parents experiencing typical levels of parenting stress.

Finally, future research could focus on how HOT DOCS serves as a prevention measure for future disruptive behaviors and the need for further services following program completion. Given the high number of children with behavioral problems and the fact that behavioral problems account for the number one referral concerns to child mental health services (Kazdin, 2003), it is important to not only discover treatments for these behaviors but also ways to prevent those behaviors. If research demonstrates that the HOT DOCS program prevents the need for more intensive services and prepares children for school success, opportunities for future funding may follow.

Conclusions

In conclusion, the purpose of the current study was to determine the predictive value of pretreatment parenting stress on completion and attendance of the HOT DOCS program. In addition, the current study investigated whether a change occurred in parenting stress for those who completed the program. Finally, updated program completion and attrition data were provided for the HOT DOCS program. HOT DOCS was found to have a high completion rate (90.2%) and a low rate of attrition (9.8%). There was a statistically significant reduction in mean parenting stress for those who completed the program.

Pretreatment parenting stress was not found to be a significant predictor of program completion or attendance.

Based on the results of this study, pretreatment parenting stress did not predict who completed HOT DOCS or how many total classes they attended. Future developers of the HOT DOCS program should continue implementing retention efforts to keep participants engaged in the class.

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Appendices

Appendix A: HOT DOCS Demographic Questionnaire-Parent/Caregiver

HOT DOCS Demographic Questionnaire – Parent/Caregiver

ADULT PARTICIPANT INFORMATION SECTION:
Please fill out the following information for the adult who is attending.

Participant Name: _____
(first) (last)

DOB: _____ **Gender:** □ Male □ Female □ Prefer not to answer

Address:_____
(Street) (City) (State) (Zip)

Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer	
Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □ Two or more races □ Prefer not to answer
Household Structure	□ Dual 2 Parent Household □ Dual 2 Other-Relatives/Kinship Care □ Male (Single) Head of Household □ Prefer not to answer □ Female (Single) Head of Household □ Other-Relative/Kinship Care (Single) Head of Household	
Highest level of Education in Household	□ Some or no high school □ Some college □ Advanced Degree □ High school graduate or GED □ Associates Degree □ Prefer not to answer □ Technical certificate □ Bachelor's Degree	
Number in Household	# Adults: _____ # Children: _____	
Primary Language	□ English □ Spanish □ Haitian-Creole □ Prefer not to answer	
Relationship to Child	□ Biological Parent □ Foster Parent □ Adoptive Parent □ Grandparent □ Other:_____	
Marital Status	□ Married □ Separated □ Single □ Widowed □ Divorced	
Current Employment	□ Full-time □ Not employed □ Part-time □ Prefer not to answer	
Yearly household income	□ $0 to 9,999 □ $25,000 to 34,999 □ $50,000 and above □ $10,000 to 24,999 □ $35,000 to 49,999 □ Prefer not to answer	

#1 CHILD INFORMATION SECTION:
Please fill out the following information based on your child. If you have more than one child please complete the additional info for Child #2 below.

Child Name: _____ (first) (last) **DOB:**_____ **Gender:** □ Male □Female □ Prefer not to answer		
Child Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer	
Child Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □ Two or more races □ Prefer not to answer
Diagnosis(es): Check all that apply	□ No diagnosis □ Developmental Delay □ Speech/Language Delay □ Intellectual Disability □ Autism spectrum disorder	□ Sensory Processing Problems □ ADHD □ Oppositional defiant Disorder □ Anxiety □ Feeding Difficulties □ Other:_____
Child's Daily Living	□ Not yet in school (circle one): – Home (parent/caregiver/relative) – Daycare (friend/relative) – Daycare (center or home-based)	□ Pre-Kindergarten or Preschool – Free lunch? Yes No □ Kindergarten – Free lunch? Yes No
#2 CHILD INFORMATION SECTION: **Please fill out the following information based on your child.**		
Child Name: _____ (first) (last) **DOB:**_____ **Gender:** □ Male □Female □ Prefer not to answer		
Child Ethnicity	□ Hispanic or Latino □ Not Hispanic or Latino □ Prefer not to answer	
Child Race	□ White □ Black or African American □ American Indian or Alaska Native □ Asian	□ Native Hawaiian or other Pacific Islander □Two or more races □ Prefer not to answer
Diagnosis(es): Check all that apply	□ No diagnosis □ Developmental Delay □ Speech/Language Delay □ Intellectual Disability □ Autism spectrum disorder	□ Sensory Processing Problems □ ADHD □ Oppositional defiant Disorder □ Anxiety □ Feeding Difficulties □ Other:_____

Child's Daily Living	□ Not yet in school (circle one): – Home (parent/caregiver/relative) – Daycare (friend/relative) – Daycare (center or home-based)	□ Pre-Kindergarten or Preschool – Free lunch? Yes No □ Kindergarten – Free lunch? Yes No

Appendix B: DOCS Parenting Stress Measure

PRE - DOCS Parenting Stress Measure

Adapted by the HOT DOCS team at UMASS from the Autism Parenting Stress Index (Silva & Schalock, 2011)

		Not Stressful	Sometimes creates stress	Often creates stress	Very stressful on a daily basis	So stressful sometimes you feel you can't cope
1	Your child's social development.	0	1	2	3	4
2	Your child's ability to communicate.	0	1	2	3	4
3	Your child's tantrums/meltdowns.	0	1	2	3	4
4	Your child's managing of emotions.	0	1	2	3	4
5	Your child's aggressive behaviors (with siblings, peers, etc.).	0	1	2	3	4
6	Your child's difficulty making transitions from one activity to another.	0	1	2	3	4
7	Your child's sleep problems.	0	1	2	3	4
8	Your child's feeding difficulties.	0	1	2	3	4
9	Your child's bathroom-related behaviors.	0	1	2	3	4
10	Concern about being embarrassed about your child's behaviors.	0	1	2	3	4
11	Concern for the future of your child being accepted by others.	0	1	2	3	4
12	Concern for the future of your child succeeding in school.	0	1	2	3	4
13	The impact parenting your child has on other life activities.	0	1	2	3	4

14	The time parenting your child takes.	0	1	2	3	4
15	The effort parenting your child takes.	0	1	2	3	4
16	The financial resources parenting your child takes.	0	1	2	3	4
17	Not feeling close to your child.	0	1	2	3	4

Participant Name or ID Code: _____ Date: _____

Please rate the following aspects of your child's behavior according to how much stress it causes you and/or your family by circling the number in the box that best describes your current situation.