FATHERS IN TREATMENT: PATERNAL ANXIETY AND DEPRESSION AS PREDICTORS OF INVOLVEMENT AND ENGAGEMENT IN PARENT-CHILD INTERACTION THERAPY

By

DANIEL LAWRENCE GERING

A THESIS PRESENTED TO THE GRADUATE SCHOOL OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE

UNIVERSITY OF FLORIDA

2013
To my parents, Perry and Laura, for your love and support, my siblings and unpaid editors Rob and Melanie, to the countless friends who were always there, and to wonderful, incredible Bird
ACKNOWLEDGEMENTS

I thank Dr. Stephen Boggs for not only serving as my chair for this defense, but for his advice, mentorship, and guidance throughout the entire creation of this manuscript. I thank Drs. David Janicke, Michael Marsiske, and Deidre Pereira for serving on my committee and for their contribution to its final completion. I thank the Child Study Lab for their continued feedback and constant encouragement throughout this process. Thanks to Nadia Bhuiyan for her unconditional positive support, daily coffee runs, and for empathetically listening to my rants and raves. I thank my family for their patience, love, and care packages full of thesis fuel. And lastly, I thank all of my friends near, far, and everywhere in between who have been there for me during this process. Without you, this would have been impossible. This project was funded by the National Institute of Mental Health (R01 MH60632).
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>4</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>6</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>7</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1 INTRODUCTION</td>
<td>9</td>
</tr>
<tr>
<td>Child Behavior Problems and Treatment</td>
<td>11</td>
</tr>
<tr>
<td>Involvement and Engagement in Treatment</td>
<td>14</td>
</tr>
<tr>
<td>Specific Aims</td>
<td>16</td>
</tr>
<tr>
<td>Specific Aim 1</td>
<td>16</td>
</tr>
<tr>
<td>Specific Aim 2</td>
<td>17</td>
</tr>
<tr>
<td>2 METHODS</td>
<td>18</td>
</tr>
<tr>
<td>Participants</td>
<td>18</td>
</tr>
<tr>
<td>Screening Measures</td>
<td>19</td>
</tr>
<tr>
<td>Study Measures</td>
<td>21</td>
</tr>
<tr>
<td>Procedure</td>
<td>22</td>
</tr>
<tr>
<td>3 RESULTS</td>
<td>25</td>
</tr>
<tr>
<td>Analysis of Normality</td>
<td>25</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>25</td>
</tr>
<tr>
<td>Specific Aim 1: Examining Predictors of Father Involvement</td>
<td>26</td>
</tr>
<tr>
<td>Specific Aim 2: Examining Predictors of Father Engagement</td>
<td>26</td>
</tr>
<tr>
<td>Exploratory analysis: Treatment Outcome</td>
<td>27</td>
</tr>
<tr>
<td>4 DISCUSSION</td>
<td>32</td>
</tr>
<tr>
<td>Parental Characteristics as Predictors of Involvement and Engagement</td>
<td>32</td>
</tr>
<tr>
<td>Limitations</td>
<td>36</td>
</tr>
<tr>
<td>Contribution and Future Directions</td>
<td>38</td>
</tr>
<tr>
<td>LIST OF REFERENCES</td>
<td>41</td>
</tr>
<tr>
<td>BIOGRAPHICAL SKETCH</td>
<td>48</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2-1</td>
<td>Participant demographic characteristics</td>
</tr>
<tr>
<td>3-1</td>
<td>Sample descriptive characteristics</td>
</tr>
<tr>
<td>3-2</td>
<td>Hierarchical regression analysis of involvement</td>
</tr>
<tr>
<td>3-3</td>
<td>Hierarchical regression analysis of engagement</td>
</tr>
<tr>
<td>3-4</td>
<td>Logistic regression analysis of treatment outcome</td>
</tr>
<tr>
<td>3-5</td>
<td>The observed and predicted frequencies for treatment completion by logistic</td>
</tr>
<tr>
<td></td>
<td>regression (Model 1) with the cutoff of .500</td>
</tr>
<tr>
<td>3-6</td>
<td>The observed and predicted frequencies for treatment completion by logistic</td>
</tr>
<tr>
<td></td>
<td>regression (Model 2) with the cutoff of .500</td>
</tr>
</tbody>
</table>
Mother-child dyads have historically been the focus of treatment for child behavior disorders, but father-child interactions also play an important part in treatment outcome and maintenance. When fathers are involved in treatment with their children, there may be less inter-parental conflict, which is in turn related to less emotional and behavioral problems in children. Having fathers involved also increases maintenance of gains made during treatment. Paternal symptomatology, specifically depression and anxiety, have been correlated with child temperament and maladjustment in children, but little research has been done to examine if these variables predict involvement and engagement in treatment of children with externalizing behavior problems.

In this study, fathers of children involved in Parent-Child Interaction Therapy (PCIT; N=56, mean father age: 39 years, 75% Caucasian) reported Anxiety and Depressive Problems on the Adult Self-Report (ASR). These variables were examined as predictors of involvement (total percentage of sessions attended) and engagement (total percentage of homework completion) after controlling for the demographic variables of father age, family socioeconomic status (SES; as measured by the
Hollingshead index), and ethnicity. Results indicated that neither depression nor anxiety significantly predicted attendance or homework completion. SES and ethnicity emerged as significant predictors of fathers’ engagement in treatment but did not predict involvement, such that higher SES and non-minority fathers were more likely to engage in treatment activities. An exploratory analysis found that higher homework completion was a significant predictor of successful treatment completion. Results are discussed in the context of reducing barriers to fathers’ participation in the treatment of children’s disruptive behavior problems.
CHAPTER 1
INTRODUCTION

As Kane and Garber (2004) detail, parenting is “a complex form of social interaction” with children that has direct influence on course, outcome, and maintenance of gains made during psychological treatment of childhood problems. Historically speaking, when examining parental factors that may affect etiology or treatment of childhood disorders, mothers have predominately been the focus of research. Mothers typically spend the most time with their children across multiple domains (Lamb, 2000; Phares, Fields, & Kamboukos, 2009), including visits to medical professionals (i.e., pediatricians, family doctors, or psychologists). For this reason, they serve more often as the intervening parent during child treatment, and are more accessible for research into how their behaviors affect their children and the course of treatment.

Among maternal factors that may influence the etiology of childhood disorders or the course of treatment, the most commonly investigated factors relate to aspects of anxiety and depression. Reported maternal anxiety has produced mixed results of both positive and negative associations with treatment outcome for anxious youth (Johnson, Cohen, Kasen, & Brook, 2006; Legerstee et al., 2008; Liber et al., 2008), and a negative relationship with outcome for children in treatment for oppositional or disruptive behavior (Elgar, Waschbusch, McGrath, Stewart, & Curtis, 2004). Maternal depression has also been related to higher child externalizing and disruptive behavior (Elgar et al., 2004; Hirshfeld-Becker et al., 2008; Johnson et al., 2006; Kane & Garber, 2009), higher risk for depression compared to children of non-depressed mothers (Hirshfeld-Becker et al., 2008), and poor parent-child interaction (Berg-Nielsen, Vikan, & Dahl, 2002).
However, the emphasis on maternal characteristics that influence treatment outcome has created a gap in the literature regarding father characteristics that may influence treatment that is only within the past 30 years being closed (Hill, Lynne-Landsman, & Boyce, 2012; Lamb, 2000; Phares et al., 2009). Even though mothers historically spend more time with their children, Phares (2009) hypothesized that the quality of the interaction with the child, not necessarily the amount of time spent, accounts for the influence on a child’s behavior. Therefore father involvement with their children, while typically less than that of their maternal counterparts, still significantly influences behavior and treatment outcome (Bagner & Eyberg, 2003; Hill et al., 2012; Johnson, Cohen, Kasen, Smailes, & Brook, 2001; Kane & Garber, 2004; Lamb, 2000).

Literature regarding how father interactions with children influence behavior and treatment resembles literature on impact of maternal symptomatology. Studies of fathers who report higher anxiety have produced mixed results, with positive, negative, and even no impact on treatment outcome reported (Berg-Nielsen et al., 2002; Liber et al., 2008; Podell & Kendall, 2011). However, fathers who report higher levels of depressive symptoms seem to have a consistent impact on their children—higher potential for child anxiety and depression and higher child externalizing behavior (Bögels & Phares, 2008; Liber et al., 2008; Phares & Compas, 1993).

In addition to the research on how father characteristics influence their children’s treatment outcome, how parents relate to each other during treatment has become a focus of study through examining division of labor between parents. Fathers have in the past typically played the “breadwinner” role in the family, with fewer responsibilities for childcare than mothers. This disparity in division of labor between fathers and mothers
regarding childrearing is beginning to shrink (Craig & Mullan, 2011). Phares et al. (2009) found that both parents report that mothers carry more responsibility in caretaking, but also suggest that both parents are happier when division of labor is more equal. This equality is achieved when fathers take an active role with their child, and even after controlling for the influence of mothers, increased paternal involvement in treatment for children’s disruptive behavior has been significantly associated with a reduction in the frequency of their behavior problems (Amato & Rivera, 1999). This in turn is associated with reduced parental and marital stress, which is shown to be related to improved temperament of preschool-aged children (McBride, Schoppe, & Rane, 2002).

**Child Behavior Problems and Treatment**

Attention Deficit/Hyperactivity and Disruptive Behavior Disorders (DBDs) are well-documented sources of difficulty during childhood, typically diagnosed during the preschool years (Wakschlag, Tolan, & Leventhal, 2010). DBDs include behaviors that are aggressive, impulsive, defiant, and noncompliant beyond developmentally appropriate levels (American Psychiatric Association, 2000; Stormshak, Speltz, DeKlyen, & Greenberg, 1997), and the externalizing behaviors associated with a diagnosis of a DBD are problematic not only in the home but are associated with impairment in the school setting as well (Finn, Pannozzo, & Voelkl, 1995). Because of this impairment in functioning for not only the child but for parents, teachers, and fellow students, DBDs are the most common reason for referrals to mental health clinics for children (American Psychiatric Association, 2000; Banaschewski, 2010; Kazdin, 1995a; Keenan & Wakschlag, 2000), with prevalence rates ranging from 6 to 22% in some epidemiological studies (Moreland & Dumas, 2008; Sadock, Kaplan, & Sadock, 2007). Treatment for these behavior problems is the most expensive mental health problem in
the United States at an estimated cost of $11 billion annually (Eyberg, Nelson, & Boggs, 2008; Kazdin, 1995b). Disorders also are stable throughout childhood, and can last into adolescence and beyond (Moreland & Dumas, 2008; Wåhlstedt, Thorell, & Bohlin, 2008), signifying the need for early identification and treatment.

Within the framework of DBDs, one facet of the relationship between parent characteristics and their child’s externalizing behavior is hypothesized as a “mutual influence” between children and parents: as the child’s hyperactive or disruptive behavior provides opportunity for negative interactions, parental coping styles combined with psychopathology determine parental reactions to behavior, and these reactions in turn influence the continuation (or in some cases, progression) of the externalizing behavior (Johnson et al., 2006). Johnson and colleagues also suggested that parental maladaptive behavior serves as a mediator between parent and child psychiatric symptoms (2001). Therefore, typical treatment of DBDs not only involves the child, but the parent as well, in order to manage both the child’s behaviors and the potential environmental and parental factors that may also influence them. In a recent review of evidence-based treatments for DBDs, the authors noted that most evidence based treatments for DBDs for young children involved parent training programs, and suggested strongly that parent training models be the “first-line approach” for treating preschool-aged children (Eyberg et al., 2008).

One program highlighted in this review was Parent-Child Interaction Therapy (PCIT, Eyberg et al., 2008; Funderburk & Eyberg, 2011). This program is designed for preschoolers diagnosed with DBDs, and has been shown to significantly reduce disruptive behaviors in young children and maintain positive gains both in the short and
long term, from four months to six years post-treatment (Bagner & Eyberg, 2003; Eyberg et al., 2004; Eyberg et al., 2001; Hood, 2003; Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998; Thomas & Zimmer-Gembeck, 2007). PCIT is designed to help parents build a warm and responsive relationship with their children, while also learning to manage their child’s behavior more effectively (Schuhmann et al., 1998).

The first phase of PCIT is *Child-Directed Interaction* (CDI), which is centered around positively changing the interactions between the child and parent, reversing the “coercive cycle” of negative interaction (as described in Patterson, 1984). The second phase of PCIT is *Parent-Directed Interaction* (PDI), in which the parent learns how to give effective commands and directs the child’s actions by consistently implementing praise for compliance to instruction, and appropriate consequences for noncompliance. During both phases of treatment, parents in a play setting are coached by the therapist, and are able to practice important behavior management skills. Another crucial aspect of PCIT is engaging with the child by doing “homework” outside of a therapy setting. At the end of each session, parents are asked to spend five minutes every day with their child in “special time,” a nondirective playtime in which the parents practice the skills taught during therapy in order to increase the potential for positive interaction in the home and reinforce positive behavioral gains made during treatment sessions. This homework does not change from week to week, only the focus of the “special time” during the week may change if the parents are lacking in one particular skill. For a complete review of PCIT and the contexts in which it has been examined, see Eyberg and Funderburk (2011) and Wagner and McNeil (2008).
Involvement and Engagement in Treatment

Because the “first-line” treatment for DBDs is parent-training models, one focus of research has been how parental involvement during treatment affects the child’s progress and overall treatment outcome. However, there is not a consistent definition of “involvement;” within the literature on parental participation, the terms “involvement” and “engagement” are used almost interchangeably, with conceptualizations ranging from simply attendance in session, to child-report of closeness with their parent, to specifically-designed questionnaires to measure exact time spent with the child (Amato & Rivera, 1999; Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008).

As explained in Parke’s (2000) review of father-specific involvement literature, Lamb and colleague’s multifaceted definition of “involvement” is the most comprehensive—it contains the three aspects of Availability, Interaction, and Responsibility (Lamb, Pleck, & Levine, 1986; Lewis & Lamb, 2003). For the purposes of the current study, “involvement” is conceptualized as the father’s presence for the child during treatment sessions, closest to the “Availability” facet of Lamb’s 2000 model. This is distinct from the aspect of “engagement,” which is conceptualized as the percentage of days fathers reported practicing their skills at home while their child was in therapy. This is more closely related to the "Interaction" facet of Lamb’s definition: “…the father's direct contact with his child through care giving and shared activities” (Parke, 2000). In PCIT, shared activities are seen as a critical aspect of treatment—the 5-minute “special time” assigned as homework every day. Therefore, reported percent of days practicing the PCIT skills while in treatment was used as the measure of engagement. This is independent from involvement because homework can be completed regardless of attendance at sessions; the homework never changes from week to week or session to
session. Even if the father attends only the first session and the final session, there is still the understanding that every day between these sessions, the “assignment” was to spend five minutes with his child in play.

Another complexity within involvement literature is that mother-specific research does not suggest what predicts varying levels of maternal involvement in the treatment of child disruptive behaviors. This may be a product of the previously-discussed historical bias in the literature: because mothers are more often available for their child's treatment, it may be simply expected that they are involved in all aspects of treatment, without the need for focused study on factors that predict involvement. Because fathers are more recently being brought into the focus of research, the question that challenges the historical assumption is being asked: “do fathers matter?” (Bagner & Eyberg, 2003; Phares et al., 2009). As Phares (2009) states, the answer has been an “overwhelming ‘yes,’” and it would appear that the first stage of investigation on how fathers matter begins at how treatment is affected when they become involved.

One recent meta-analysis by Sarkadi and colleagues (2008) found a tremendous amount of support for encouraging father involvement in treatment. Including both biological fathers as well as father figures in the home, they found that all but two of the investigations reviewed suggested positive results for increased paternal involvement, including reduction in the likelihood of aggressive and disruptive behavior in preschool-aged children. From this review of the literature, the authors state that “it would seem that active and regular engagement with the child predicts a range of positive outcomes.” Within the context of parenting groups for training, higher attendance by both parents has been associated with better quality of participation, and in turn a
reduction of parental stress (Dumas, Nissley-Tsiopinis, & Moreland, 2007). Additionally, having a second parent involved in treatment is significantly related to a reduction in marital conflict, which is associated with a reduction in externalizing behavior in young children (Phares et al., 2009). In addition to a reduction in the frequency of their child’s behavior problems (Amato & Rivera, 1999), families report longer maintenance of treatment gains when the father is involved in treatment as compared to fathers who are absent or uninvolved (Bagner & Eyberg, 2003; Phares, Fields, & Binitie, 2006), suggesting that parents may serve as their own support system for learning and maintaining the skills taught during therapy (Horton, 1984).

Even with some evidence highlighting the positive effect and importance of father involvement and engagement in treatment, as well as the well-documented influence of anxiety and depression on treatment progress and outcome, the relationship between these variables has been only minimally investigated. Furthermore, current DBD research literature focuses predominately on mothers, with little research on their paternal counterparts. Some parental factors that may influence treatment have been recently explored specifically within the context of PCIT (Zisser & Eyberg, 2012), but neither the influence of father involvement and engagement nor the influence of paternal anxiety and depression on levels of father involvement and engagement have been among them.

**Specific Aims**

**Specific Aim 1**

The first primary research question was to investigate how father self-reported anxiety and depressive symptoms at pretreatment influenced involvement in Parent-Child Interaction Therapy. For the current study from which participants were drawn,
fathers were not required to attend treatment sessions each week, whereas it was
mandatory for mothers to be at every session. Therefore, involvement was
conceptualized as the percentage of sessions fathers attended, even though
attendance was not mandatory. It was hypothesized that after controlling for
demographic variables (father age, family SES, and ethnicity), higher levels of father
anxiety and lower levels of reported depression would predict higher levels of
involvement in treatment.

**Specific Aim 2**

The second specific aim was to examine the influence of fathers’ symptoms of
anxiety and depression on the fathers’ engagement in treatment. It was hypothesized
that after controlling for demographic variables, fathers who reported higher depression
would be lower in homework completion, whereas higher reported anxiety would predict
higher homework completion.

These two aims together not only address the question of how anxiety and
depression predict father availability for treatment, but investigate their effect on the
prediction of actual interaction with children within the context of treatment.

A final exploratory analysis was completed to address the overall impact and
importance of involvement and engagement in treatment, and used these two factors to
predict overall treatment outcome, measured by successful treatment completion or
dropout. As previous literature has noted (Podell & Kendall, 2011), higher involvement
by parents in the treatment of their children is significantly related to a higher chance of
treatment completion. Therefore, we hypothesized that higher attendance and
especially homework completion by fathers would be significantly associated with higher
successful treatment completion.
CHAPTER 2
METHODS

Participants

Participants were 56 fathers of children ages 4 to 6, drawn from a larger treatment study that examined the efficacy of PCIT for children with ADHD. The original study included 128 children, recruited via referrals from local physicians, teachers, day care providers, and self-referrals. To be included in the present study, fathers of these 128 children needed to be present during at least one pretreatment session, and needed to have completed the full set of measures required at the initial assessment, including self-report measures and a behavioral observation.

Inclusion criteria for the study were as follows: a) the child was between 4 and 6 years of age at entrance into the study; b) the child attended daycare/preschool at least some part of each week; c) the child met diagnostic criteria for a DSM-IV diagnosis of ADHD hyperactive-impulsive or combined type; d) the child lived with a female caregiver able to participate in assessment and treatment with the child (other caregivers in the home were strongly encouraged to participate); e) the child and primary caregiver both obtained a Standard Score of 75 or higher on a cognitive screening measure. Children were excluded if they presented with a history of sensory or mental impairment (e.g., deafness, autism), were actively taking psychoactive medication, were currently involved in other psychosocial treatment, or were involved in crisis requiring out-of-home placement. Families under investigation for child abuse or neglect were also excluded.

Fathers in the present sample had a mean age of 38.52 years (SD = 9.41), with a range from 20 to 69 years old. Socioeconomic status, as calculated for the entire
household by the Hollingshead (1975) Index, was a mean of 47.11 (SD = 10.39) with a range from 20 to 66, which is indicative of a wide socioeconomic status range among participants. The racial background of the fathers was as follows: 75% Caucasian/Non-Hispanic, 12.5% African American, 1.8% Asian American, 5.3% Native American, and 5.3% who self-identified as “other.” Children of the 56 fathers included in the study were 75% male, with a mean age of 4.88 years old (SD = .764). Racial background of the children was as follows: 80.4% Caucasian/Non-Hispanic, 12.5% African American, 1.8% Asian American, 1.8% Native American, and 3.6% who were identified by their caregiver as “other.” Participant characteristics can be found in Table 2-1.

Screening Measures

**Diagnostic Interview Schedule for Children – IV – Parent:** (NIHM DISC-IV-P; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). Mothers were administered the DISC-IV-P, a structured diagnostic interview, at pre-assessment to aid in determining the inclusion criteria of an ADHD diagnosis, as well as screening for other potential comorbidities. This interview is based on the Diagnostic and Statistical Manual of Mental Disorders criteria (DSM-IV; American Psychiatric Association, 1994) and has good test-retest reliability of .79 for ADHD and .54 for ODD (Shaffer et al., 2000). Parents were administered the ADHD, ODD, Conduct Disorder (CD), Major Depressive Disorder (MDD) and Separation Anxiety Disorder (SAD) modules.

**Child Behavior Checklist:** (CBCL; Achenbach, 1991; 1992; Achenbach & Rescorla, 2000, 2001). Parents were administered the CBCL at pre-assessment. The CBCL is a parent-report measure of a child’s emotional and behavioral symptoms. In the current study, parents received the CBCL for 1.5-5 year olds (Achenbach & Rescorla, 2000) or the CBCL for 6-18 year olds (Achenbach & Rescorla, 2001),
depending on the age of their child at entrance into the study. Raw scores were converted into standardized T-scores to aid in comparison between versions of this measure. In this study, children required a T-score over 61 on the DSM-Oriented ADHD scale for entrance into the study.

**Peabody Picture Vocabulary Test – Third Edition:** (PPVT-III, Dunn & Dunn, 1997). The PPVT is a measure of receptive language ability and was administered to children at pre-assessment as a proxy for cognitive ability. The PPVT is highly correlated with the full scale IQ score on the Wechsler Intelligence Scale for Children, (WISC; Dunn & Dunn, 1997). The PPVT has a split-half reliability range between .86 and .97, and test-retest reliability range from .91 to .94 (Dunn & Dunn, 1997). Children were required to attain a score of 75 for inclusion study.

**Wonderlic Personnel Test:** (WPT; Dodrill, 1981). THE WPT is a 50-item measure of intellectual ability and was administered to parents at pre-assessment as a proxy for cognitive ability. The WPT is well correlated with the full scale score on the Wechsler Adult Intelligence Scale, achieving a correlation of .93 (WAIS; Dodrill, 1981). Parents were required to attain a score of 75 for inclusion in the studies.

**Conners’ Teacher Rating Scale – Revised: Long Version** (CTRS-R:L; Conners, 1997). The CTRS is a 59-item teacher-rating scale used to measure ADHD symptoms as well as ODD symptoms for children between the ages of 3 and 17. The CTRS-R:L has good psychometric properties with a test-retest reliability coefficients between .60 and .90 (Conners, 1997). For the current study, the teachers’ responses were required to place the child in the clinically significant range on either of the ADHD
relevant subscales: the DSM-IV: Hyperactive/Impulsive or DSM-IV: Inattention subscale.

Study Measures

Demographic and Background Questionnaire: Parents were administered a questionnaire at pre-treatment that collected information such as parent and child gender, age, race/ethnicity as well as occupation, and education level of the parent. Father characteristics examined in the present study (age, ethnicity, socioeconomic status), were determined by responses on this questionnaire.

Adult Self-Report: (ASR: Achenbach & Rescorla, 2003). The Adult Self-Report is a 123-item self-report measure of adult emotional and behavioral problems filled out by both parents separately at pre-assessment. Scores on this measure are summed into empirically-derived narrow- and broad-band scale scores. The item ratings may also be used to derive scale scores corresponding to DSM-IV diagnoses (depressive problems, anxiety problems, somatic problems, avoidant personality problems, ADHD problems, and antisocial personality problems). For this present study, the DSM-IV Depressive Problems and Anxiety Problems scale T-scores were used to examine parental self-reported internalizing symptoms. In this sample, Cronbach’s Alpha for the total measure was 0.94, and the Alpha for Depression and Anxiety subscales was 0.75 and 0.76, respectively.

Involvement and Engagement: Involvement was conceptualized as the percentage of treatment sessions the father attended. This was calculated as the total number of sessions attended by the father (including pre- and post-treatment assessments), divided by the total number of sessions the family required to complete treatment. Engagement in treatment was defined as the percentage of homework
assignments completed by the father during treatment. This was calculated as the total number of days the father reported practicing the skills divided by number of total days in treatment.

**Procedure**

**Screening Assessments**

Families completed an informed consent process approved by the University of Florida Institutional Review Board for the Protection of Human Participants and then completed a pre-treatment assessment to determine if a family met inclusion criteria. Parents were required to complete questionnaires including the demographic and background questionnaire, ASR, and CBCL. In addition, parents were administered the DISC-IV-P with a Clinical Interview and completed the WPT. The child was administered the PPVT-III.

**Treatment**

Therapy took place weekly and was administered by two therapists who followed the official PCIT treatment manual for each session (Funderburk & Eyberg, 2011). Therapists conducted therapy in a child play room, equipped with an observation room with a one-way mirror to facilitate therapist coaching a parent to learn skills during play with their child. In addition, a “bug-in-the-ear” device was used to transmit coaching statements from the therapist’s microphone in the observation room to the parent’s ear in the play room.

The first portion of PCIT, the Child-Directed Interaction (CDI), focused on enhancing parent-child attachment, positive parenting and child social skills. Parents were instructed in play therapy skills such as increasing child positive behaviors through labeled praise and decreasing child negative behaviors through the removal of
attention. At the end of each session during treatment, parents were instructed to practice the skills taught during therapy for five minutes each day until the next session, focusing on a particular skill developed during treatment. Then, during the following session, parents were asked at the beginning of the hour to report how many days they had practiced and any problems they had encountered during the previous week. To move on to the next phase of treatment, parents were required to achieve CDI mastery criteria by demonstrating appropriate use of play therapy skills during a coding period with no therapist coaching.

Families who achieved CDI mastery criteria moved on to the second phase of treatment, or the Parent-Directed Interaction (PDI) phase. In this phase, parents were taught to use clear directives and appropriate, consistent follow-through as forms of behavior management and discipline. Daily homework assignments continued throughout this phase as well. Parents were required to meet PDI mastery criteria by demonstrating an ability to provide clear direct commands and follow-through with labeled praise or the appropriate time-out procedure for noncompliance. Families graduated from treatment when parents had achieved CDI and PDI mastery, had rated the child’s disruptive behavior within 0.5 standard deviations of the normative range on the ECBI (an Intensity Score of 114), and reported that they were confident in their ability to effectively manage the child’s behavior without therapist guidance.
Table 2-1. Participant demographic characteristics

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Father Age (years)</td>
<td>38.52</td>
<td>9.41</td>
</tr>
<tr>
<td>Child Age (years)</td>
<td>4.88</td>
<td>.764</td>
</tr>
<tr>
<td>Family SES</td>
<td>47.11</td>
<td>10.39</td>
</tr>
</tbody>
</table>

Father Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian/Non-Hispanic</td>
<td>42</td>
<td>75.0</td>
</tr>
<tr>
<td>African American</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>Asian American</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Native American</td>
<td>3</td>
<td>5.4</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>5.4</td>
</tr>
<tr>
<td>Total Minority</td>
<td>14</td>
<td>25.0</td>
</tr>
</tbody>
</table>

Child Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>42</td>
<td>75.0</td>
</tr>
</tbody>
</table>

Child Ethnicity

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caucasian/Non-Hispanic</td>
<td>45</td>
<td>80.4</td>
</tr>
<tr>
<td>African American</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>Asian American</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Native American</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>3.6</td>
</tr>
<tr>
<td>Total Minority</td>
<td>11</td>
<td>19.6</td>
</tr>
</tbody>
</table>

Note: N = 56.
CHAPTER 3
RESULTS

Analysis of Normality

Before conducting study analyses, normality was assessed for all study measures. Skewness and kurtosis were examined and an absolute value greater than 1.5 was used to indicate significant skewness or kurtosis. All measures were normally distributed based on this requirement. T-scores for Anxiety Problems and Depressive Problems from the ASR were examined for outliers using Mahalanobis’s criteria. One outlier was found for Depressive Problems, and was subsequently excluded from the present analysis. Visual inspection of normality graphs was also performed and indicated normality assumptions were met for all study measures.

Data Analysis

Descriptive statistics were calculated for Age, SES (as measured by the Hollingshead Index), and Ethnicity (see Table 2-1). Due to low numbers of some racial minority groups of fathers, the variable for ethnicity was collapsed into Caucasian/Non-Hispanic and Minority-status, yielding 42 Caucasian/Non-Hispanic fathers and 14 Minority-status fathers. The Depressive Problems and Anxiety Problems T-scores from the DSM-Oriented Scales of the ASR were also examined. The present sample’s mean ASR T-score for the Depressive Problems was not within the clinically significant range, nor was the Anxiety Problems T-score. Mean involvement was 66.78% (SD = 35.9), with a range from 0 to 100%, indicating a very wide range of attendance from fathers. Mean engagement was 39.18% (SD = 28.64), with a range from 0 to 95% also indicating a wide range of engagement (see Table 3-1).
Two separate hierarchical multiple linear regressions were conducted to assess reported depressive and anxiety problems as predictors of involvement and engagement in treatment. Predictors were entered into blocks in a hierarchical fashion to assess the contribution of successive predictors after controlling for previously entered predictors. In Block 1, the father’s demographic characteristics of age, SES, and ethnicity were entered into the regression. In Block 2, T-scores from the selected ASR scales were entered simultaneously into the regression. The outcome variable in the first regression (examining father involvement) was percent of sessions attended by the father during treatment. The outcome variable for the second regression (examining engagement) was self-reported percent of days practicing the skills taught during therapy. A summary of statistical results can be found in Tables 3-2 and 3-3.

**Specific Aim 1: Examining Predictors of Father Involvement**

Initially, the father’s demographic data were entered into the regression equation in Block 1. This model was not significant (F(3,52) = 1.889, p = ns, \(\hat{\eta}^2 = .108\)) and accounted for 9.8% of the variance in attendance. After controlling the variance explaining attendance in Block 1, ASR T-scores for Depression and Anxiety were included in Block 2. This model, which included both Block 1 and Block 2, was also not significant (F(5,50) = 1.102, p = ns, \(\hat{\eta}^2 = .109\)), and accounted for an increase of only 0.1% of the explained variance in attendance.

**Specific Aim 2: Examining Predictors of Father Engagement**

Similarly to Specific Aim 1, the father’s demographic data were entered into Block 1 of the regression equation, and the ASR T-scores into Block 2. Model 1 (which included only Block 1) was significant (F(3,52) = 6.912, p = .001, \(\hat{\eta}^2 = .398\)), and explained 28.5% of the variance in homework completion. Investigation of individual
variables in this model revealed that both SES ($\beta = .497$, $p < .001$) and Ethnicity ($\beta = .333$, $p < .01$) were significant predictors of homework completion. Model 2, which controlled for the variance explained by demographic variables in Block 1, was also significant ($F(5,50) = 4.313$, $p = .002$, $f^2 = .430$), and accounted for 30.1% of the variance in homework completion, a 1.6% increase from Model 1 (though this was not a significant increase). Individual variables in this model were examined and revealed that SES ($\beta = .537$, $p < .001$) and Ethnicity ($\beta = .287$, $p < .05$) were again the only significant predictors of homework completion.

**Exploratory analysis: Treatment Outcome**

To more fully understand the importance of the impact of attendance and homework completion, these variables were entered into a binary logistic regression, predicting treatment outcome (successful completion of treatment or dropout). In Block 1 of the regression, the three demographic variables of SES, ethnicity, and age were entered, in order to control for their variance, followed by homework completion percentage and attendance percentage in Block 2 (see Table 3-4). Model 1 (which included only Block 1) was a significant improvement over a null model of predicting outcome ($\chi^2[2] = 8.345$), and the analysis revealed that SES was a significant predictor of completion or attrition ($B = .093$, $p = .012$, OR = 1.097), with higher SES scores associated with higher chance of completion. Specificity and sensitivity were 92.7% and 26.7%, respectively (see Table 3-5).

The subsequent model which included both Blocks 1 and 2 (Table 3-4) investigated whether adding Homework Completion and Attendance improved the model. SES was no longer a significant predictor ($B = .028$, $p = ns$, OR = 1.028); homework completion was the single significant predictor of treatment completion or
dropout (B = .061, p < .01, OR = 1.063), with higher homework completion meaning higher probability of successful treatment completion. Adding Homework and Attendance was a significant improvement from both the null model ($\chi^2 [4] = 19.647$) and the demographics-only model ($\chi^2 [2] = 11.136$). Specificity and sensitivity were 92.7% and 53.3%, respectively (see Table 3-6).
Table 3-1. Sample descriptive characteristics

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance (%)</td>
<td>67.67</td>
<td>35.61</td>
<td>0.00</td>
<td>100</td>
</tr>
<tr>
<td>Homework Completion (%)</td>
<td>38.85</td>
<td>28.79</td>
<td>0.00</td>
<td>95</td>
</tr>
<tr>
<td>Anxiety Problems (T)</td>
<td>56.07</td>
<td>6.466</td>
<td>50</td>
<td>76</td>
</tr>
<tr>
<td>Depressive Problems (T)</td>
<td>52.61</td>
<td>8.856</td>
<td>30</td>
<td>67</td>
</tr>
</tbody>
</table>

Table 3-2. Hierarchical regression analysis of involvement

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
<th>F Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>-.359</td>
<td>.500</td>
<td>-.095</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>.874</td>
<td>.466</td>
<td>.255</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>18.947</td>
<td>11.085</td>
<td>.232</td>
<td>.098</td>
<td>1.889</td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>-.314</td>
<td>.554</td>
<td>-.083</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>.893</td>
<td>.511</td>
<td>.261</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>18.280</td>
<td>12.099</td>
<td>.224</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression Problems</td>
<td>.186</td>
<td>.810</td>
<td>.046</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Problems</td>
<td>-.124</td>
<td>1.039</td>
<td>.023</td>
<td>.099</td>
<td>.001</td>
<td>1.102</td>
</tr>
</tbody>
</table>

Note: N = 56, *p ≤ .05; **p ≤ .001

Table 3-3. Hierarchical regression analysis of engagement

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>R²</th>
<th>ΔR²</th>
<th>F Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>-.331</td>
<td>.360</td>
<td>-.108</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>1.376**</td>
<td>.336</td>
<td>.497</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>-.165</td>
<td>.394</td>
<td>-.054</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>1.487**</td>
<td>.364</td>
<td>.537</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>18.898*</td>
<td>8.615</td>
<td>.287</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression Problems</td>
<td>.552</td>
<td>.577</td>
<td>.170</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Problems</td>
<td>-.095</td>
<td>.740</td>
<td>.021</td>
<td>.301</td>
<td>.016</td>
<td>4.313*</td>
</tr>
</tbody>
</table>

Note: N = 56, *p ≤ .05; **p ≤ .001
Table 3-4. Logistic regression analysis of treatment outcome

<table>
<thead>
<tr>
<th>Model Description</th>
<th>B</th>
<th>SE B</th>
<th>Wald's $\chi^2$</th>
<th>df</th>
<th>$p$</th>
<th>$e^\beta$ (odds ratio)</th>
<th>-2LL</th>
<th>Improvement over Null</th>
<th>Improvement over previous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model 0: Intercept only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>1.006</td>
<td>.302</td>
<td>11.104</td>
<td>1</td>
<td>.001</td>
<td>2.733</td>
<td>65.085</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 1: Demographic Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-3.306</td>
<td>1.944</td>
<td>2.892</td>
<td>1</td>
<td>.089</td>
<td>.037</td>
<td>56.074</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>.013</td>
<td>.033</td>
<td>.164</td>
<td>1</td>
<td>.686</td>
<td>1.014</td>
<td>.037</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>.091</td>
<td>.034</td>
<td>6.073</td>
<td>1</td>
<td>.014</td>
<td>1.095</td>
<td>.290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-1.237</td>
<td>.779</td>
<td>2.892</td>
<td>1</td>
<td>.089</td>
<td>.290</td>
<td>56.574</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model 2: Add HW and Attend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.682</td>
<td>2.292</td>
<td>.539</td>
<td>1</td>
<td>.463</td>
<td>.186</td>
<td>.186</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father Age</td>
<td>.026</td>
<td>.037</td>
<td>.493</td>
<td>1</td>
<td>.482</td>
<td>1.026</td>
<td>.037</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>.024</td>
<td>.046</td>
<td>.284</td>
<td>1</td>
<td>.594</td>
<td>1.025</td>
<td>.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.520</td>
<td>.879</td>
<td>.350</td>
<td>1</td>
<td>.554</td>
<td>.595</td>
<td>.595</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homework Completion</td>
<td>.063</td>
<td>.023</td>
<td>7.452</td>
<td>1</td>
<td>.006</td>
<td>1.065</td>
<td>.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance %</td>
<td>-.019</td>
<td>.013</td>
<td>2.406</td>
<td>1</td>
<td>.121</td>
<td>.981</td>
<td>45.438</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: N = 56. Model 1 Hosmer & Lemeshow = ns, Cox & Snell $R^2 = .141$, Nagelkerke $R^2 = .205$. Model 2 Hosmer & Lemeshow = ns. Cox & Snell $R^2 = .296$, Nagelkerke $R^2 = .431
Table 3-5. The observed and predicted frequencies for treatment completion by logistic regression (Model 1) with the cutoff of .500

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Dropout</th>
<th>Complete</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropout</td>
<td>4</td>
<td>11</td>
<td></td>
<td>26.7</td>
</tr>
<tr>
<td>Complete</td>
<td>3</td>
<td>38</td>
<td></td>
<td>92.7</td>
</tr>
</tbody>
</table>

Overall % Correct 75.0

*Note: Sensitivity = 4/(4+11) = 26.7%. Specificity = 38/(38+3) = 92.7%. False Positive = 3/(3+4) = 42.9%. False Negative = 11/(11+38) = 22.4%.*

Table 3-6. The observed and predicted frequencies for treatment completion by logistic regression (Model 2) with the cutoff of .500

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Dropout</th>
<th>Complete</th>
<th>% Correct</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dropout</td>
<td>8</td>
<td>7</td>
<td></td>
<td>53.3</td>
</tr>
<tr>
<td>Complete</td>
<td>3</td>
<td>38</td>
<td></td>
<td>92.7</td>
</tr>
</tbody>
</table>

Overall % Correct 82.1

*Note: Sensitivity = 8/(8+7) = 53.3%. Specificity = 38/(38+3) = 92.7%. False Positive = 3/(3+8) = 27.3%. False Negative = 7/(7+38) = 15.6%.*
CHAPTER 4
DISCUSSION

Parental Characteristics as Predictors of Involvement and Engagement

This study examined self-reported internalizing symptoms as possible predictors of paternal involvement and engagement in PCIT. We found that neither paternal anxiety nor depression predicted involvement or engagement in this sample of families. This result is surprising within the historical context of literature examining factors that may influence treatment outcome: the negative effect of parental internalizing symptoms has been documented similarly to the positive effect of involvement and engagement, but there appears to be little to no relationship between these constructs in this study. However, this result is consistent with more recent literature examining the potential negative effect of paternal internalizing symptoms on treatment of anxious youth (Podell & Kendall, 2011), in that these researchers similarly found no direct relationship between internalizing symptoms in fathers and treatment outcome.

Literature also suggests that when fathers are included in treatment and are more able to attend and fully engage, there is higher potential for a more positive outcome (Amato & Rivera, 1999; Podell & Kendall, 2011). This finding is directly related to the findings of the current study—the exploratory analysis presented in this study found a similar positive relationship between higher father engagement and successful treatment completion.

Characteristics of this sample may shed some light on the lack of predictive power of anxiety and depression for this study: when examining the descriptive statistics of the sample analyzed, the average T score for both anxious and depressive symptoms (56.07 and 52.61, respectively) in all fathers falls well beneath the range of
clinical concern. Within the limited sample size of this study, there were only five fathers who reported clinically significant levels of depressive symptoms, and eight fathers who reported clinically significant levels of anxious symptoms, with four of these fathers reporting significantly high levels in both categories. This restricted range in anxious and depressive symptoms suggests the possibility that depressed or anxious fathers who would have scored higher on these variables were the fathers who did not participate at all in treatment and therefore were not considered in these analyses. This possibility is supported by previous literature on both maternal and paternal internalizing symptoms and how they affect treatment, specifically the relationship between disruptive behavior in children and internalizing symptoms in parents (Berg-Nielsen et al., 2002; Hirshfeld-Becker et al., 2008; Johnson et al., 2006; Johnson et al., 2001; Weinfield, Ingerski, & Moreau, 2009).

In examining the effect of paternal internalizing behaviors, we controlled for the variables of father age, ethnicity, and SES in order to assess the influence of paternal anxiety and depression beyond what these demographic predictors might account for alone. Previous studies have consistently found significant influence of these demographic variables on treatment process and outcome variables, including attrition (Berg-Nielsen et al., 2002; Fernandez, Butler, & Eyberg, 2011; Fernandez & Eyberg, 2009; Walker, 2012). In the present study, the occurrence of therapy sessions was not dependent on paternal attendance. Therefore fathers could choose to attend independently from their maternal counterparts, and their attrition in this study would appear in the form of lower involvement and/or potentially lower engagement.
Lower SES has been strongly associated with negative treatment outcome of parent-training interventions, especially attrition (Fernandez et al., 2011; Fernandez & Eyberg, 2009; Rogers, Forehand, Griest, Wells, & McMahon, 1981). Minority status also has been associated with lower involvement in educational programs (Hornby & Lafaele, 2011) and treatment attrition, specifically in PCIT (Fernandez & Eyberg, 2009; Lyon & Budd, 2010), though at least one study found that minority status had no predictive power for attrition from PCIT (Werba, Eyberg, Boggs, & Algina, 2006). Maternal age has previously predicted PCIT treatment completion or dropout (Werba et al., 2006), with older mothers more likely to complete treatment successfully, but father age has to date been largely unexamined in a PCIT setting. Because of the limited research on age of father and involvement in treatment, as well as the wide range of fathers in this sample (20 to 69 years old), age was included as one of the predictors to examine potential effects on engagement and involvement.

This study found that age, ethnicity, and SES were not significant predictors of involvement in therapy, however higher SES and non-minority racial status were significant predictors of increased engagement in treatment as measured by days of homework practice reported out of total days in treatment. Additionally, an exploratory analysis of paternal homework completion showed that this aspect of treatment served as a significant predictor of treatment completion while attendance did not, similar to previous literature (Dumas et al., 2007).

Although higher SES and non-minority racial status were significant predictors of engagement in treatment and resulted in a significant regression model, these factors predicted only approximately 30% of the variance in homework completion. This finding
suggests there is a large portion of the variance yet to be explained outside of these two variables. While racial status was a significant predictor of engagement, generalizability is a specific weakness and limitation of this study as minority fathers were grouped under one overarching category due to lack of representation within the sample. Specifically, low SES may be representative of many different challenges within a family, and may stand as a proxy for a host of variables to be considered individually during treatment.

Among the factors that may be contributing to SES as a predictor of involvement are such economically-related challenges as employment demands and availability of resources. Fathers in low-SES families may have limited access to private or public transportation to get to the treatment setting. In addition, they may be working multiple jobs with limited time to attend treatment, increasing the impact of job-related stress on treatment. As noted by Goldberg and colleagues (2002), fathers are more likely to engage in treatment when not suffering from job-related stress.

From the present study, the more fathers engaged at home using the skills taught during therapy, the more likely families were to successfully complete treatment. This directly has an impact within the context of PCIT: when fathers attend treatment and are involved, the gains made at the end of therapy last longer than in families where the father either was not present in the home or present in the home but uninvolved (Bagner & Eyberg, 2003). Parent-training therapies are more likely to be effective if the father is involved and has multiple exposures to the intervention (Magill-Evans, Harrison, Rempel, & Slater, 2006). Therefore, therapists using PCIT should continue to carefully investigate potential multifaceted barriers to treatment (such as
SES) in an attempt to include both parents in therapy, as both fathers and mothers have
direct and lasting impact on treatment outcome.

Limitations

This study’s findings should be interpreted in light of several limitations. First,
analyses were calculated using secondary data analysis of individual scales from an
overall comprehensive self-report measure of psychopathology used in the PCIT study
from which the sample was drawn. Though this measure has good psychometric
properties and has demonstrated utility for measuring internalizing symptoms, the Adult
Self-Report accounts for more than simply these two factors. Examination of the
measure’s total scale score and other subscales may result in a better understanding of
the contributions of paternal psychological functioning to father involvement and
engagement in treatment.

A second consideration, also related to measurement, is the use of the
Hollingshead index as a comprehensive measure of socioeconomic status. There has
been some argument as to the utility of a single composite measure of SES, with
literature suggesting that multiple measured components used to calculate overall SES
should instead be analyzed individually for their predictive value rather than combined
into a single index (Duncan & Magnuson, 2003; Smith & Graham, 1995). However,
within the context of PCIT, this research has been limited in impact: separate elements
of SES analyzed individually (income, occupation, and education) have been shown to
explain significantly more variance than the Hollingshead index only within child
prosocial talk during PCIT (Callahan & Eyberg, 2010). For the purposes of the present
study, separating the Hollingshead index into its separate components would serve to
add no predictive power for the dependent variables being analyzed. The Hollingshead
index was used as the measure of SES because it takes into account education, occupation, and income into a comprehensive index and it is the most commonly used metric for SES in the child treatment literature, which provides the opportunity for comparison to other samples.

A third limitation involves the small sample size for the present study (N = 56). The fathers analyzed in this sample were included only if they had attended at least a single session at pretreatment, in order to guarantee they had completed the relevant measures. Because this study established mothers as the primary caregiver and fathers were not required to attend sessions, a portion of fathers from the pool of potential participants never attended therapy at all. This absence from treatment could have been the product of a number of factors, including internalizing symptoms investigated within this study.

A fourth limitation may be reporter inaccuracy of homework completion. While precautions were taken to ensure the most precise measurement possible with individual homework sheets for each parent and forms to fill out for each session, it should be noted that parents occasionally lost their worksheets or “couldn’t remember” exact days they practiced skills, and thus could potentially under- or over-report days practiced. However, with consistent weekly therapist monitoring of accuracy, missing or inaccurate data and the potential for measurement error were kept to a minimum.

A final limitation of this study lies in the underrepresentation of minority fathers in this study. In this sample, the low number of minority fathers from some ethnic groups created group sizes of a considerably small number (one to three fathers in some cases), and this warranted the sample being collapsed into a single, condensed
“minority” group instead of each minority being individually analyzed. This may have limited the ability to detect further significant effects of minority status differences within this sample. A larger representation of minority-status fathers would have enabled a more complete analysis of all minority groups as opposed to a single “minority” category, as literature suggests there are individual differences between ethnicity on some measures of treatment outcome (Fernandez & Eyberg, 2009).

**Contribution and Future Directions**

This study provided relevant clinical information which may be used immediately to help direct treatment. It will be useful for therapists to be aware of the variables of minority status and lower SES as potential barriers to paternal engagement in treatment, and should take these into consideration when planning the course and content of therapy. It may be pertinent to tailor treatment for specific individuals once these risk factors are identified within families, in order to maximize potential for treatment success.

This study contributes significantly to the growing body of literature on fathers in treatment of their children, what factors may predict their participation, and how their role in intervention may shape progress through treatment. Higher SES, non-minority fathers were more likely to engage in treatment by following through more often with “homework” and practicing therapy skills outside of the session. Although previous literature has focused on paternal impact on etiology and maintenance of childhood anxiety and depression (Berg-Nielsen et al., 2002; Podell & Kendall, 2011), this present study explores paternal factors that influence father participation during treatment of children with disruptive behavior disorders. As Parke (2000) notes, involvement with children is not simply the “crude distinction” between absence and presence, and that
parental influence encompasses more than simply face-to-face interaction—parents serve in a managerial role, organizing the environment and the experiences children attain from it. Parents also influence each other outside of the treatment setting; by equalizing the division of labor by involving multiple parents in treatment, parents are more satisfied within their relationship and this in turn increases the likelihood of successful treatment and reduction of disruptive behavior (Lamb et al., 1986; Phares et al., 2009). With this in mind, it is crucial that therapists take every precaution at the beginning of treatment to ensure that factors shown to impact father involvement are taken into account so that all potential barriers may be addressed from the outset. This consideration may encourage fathers to attend and engage more actively in the treatment of their children.

Future research might focus on other self-reported factors that predict father involvement or engagement in treatment, such as ADHD or Antisocial symptoms. This study used previously-documented parental factors as a basis for exploration, but as neither anxiety nor depression significantly predicted participation, other variables should be explored to examine their contribution.

Additionally, research might expand to examine the predictive utility of negative father-child interactions at pretreatment, and explore the relationship between pretreatment negative interaction and treatment outcome. Characteristics of father-child interaction have been studied minimally in relation to outcome, and may explain additional variance in treatment success or attrition. These variables may be used to examine the potential complex mediation or moderation of the relationship between ethnicity, SES, and treatment outcome.
Finally, paternal participation in treatment may be examined outside of PCIT and within other parent-training models. Important information on what predicts how fathers engage across multiple treatment paradigms is crucial in order to build a comprehensive view of how fathers participate during treatment of their children, and the importance of their involvement in the therapeutic process.
LIST OF REFERENCES


BIOGRAPHICAL SKETCH

Daniel Lawrence Gering was born and raised in Bethany, Oklahoma. After graduating from Putnam City West High School in 2006, he began his undergraduate career seven miles down the road at Oklahoma City University as a piano performance major but decided to instead pursue psychology after taking psychology courses during his freshman year. He served as the Concertmaster for over two years in the Oklahoma City University Symphony Orchestra and played with the Fort Smith Symphony Orchestra while also working in the Parent-Child Interaction Therapy lab at the University of Oklahoma Health Sciences Center, and he subsequently chose to focus in the area of child psychology. He graduated magna cum laude with a Bachelor of Science degree in psychology and a Bachelor of Arts in music with violin focus in May 2011 from Oklahoma City University.

Mr. Gering is currently attending the University of Florida in pursuit of a Master of Science degree on the way to a Doctor of Philosophy degree in clinical and health psychology, with a focus on clinical child psychology. His research interests include parent-child interactions, father influence on treatment and outcome, and the treatment of autism spectrum disorders. He is a member of the Child Study Lab at the University of Florida, where he works as an assessor for a National Institute of Mental Health (NIMH)-funded grant studying the use of Parent-Child Interaction Therapy in individual and group formats for children meeting diagnostic criteria for Attention-Deficit/Hyperactivity Disorder.