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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

PARENTAL INVOLVEMENT AND GROUP COGNITIVE BEHAVIORAL TREATMENT FOR ANXIETY DISORDERS IN CHILDREN AND ADOLESCENTS: TREATMENT SPECIFICITY AND MEDIATION EFFECTS OF PARENT AND PEER VARIABLES

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF PHILOSOPHY

in

PSYCHOLOGY

by

Carla E. Marin

2010

To: Dean Kenneth G. Furton
College of Arts and Sciences

This dissertation, written by Carla E. Marin, and entitled Parental Involvement and Group Cognitive Behavioral Treatment for Anxiety Disorders in Children and Adolescents: Treatment Specificity and Mediation Effects of Parent and Peer Variables, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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William M. Kurtines

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Date of Defense: July 15, 2010

The dissertation of Carla E. Marin is approved.

_____
Dean Kenneth G. Furton
College of Arts and Sciences

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Interim Dean Kevin O'Shea
University Graduate School

Florida International University, 2010

DEDICATION

Dedico esta tesis doctoral a mi familia—especialmente a mis padres. Yo no hubiese alcanzado esta meta si no hubiese sido por sus grandes sacrificios, su apoyo, paciencia, y amor. Soy la persona que soy hoy por ellos. También dedico esta tesis doctoral a mi Tía Maruca, por su atención, apoyo, y amor hacia mí y a mis hermanos. Finalmente dedico este trabajo a mis hermanos, María y Carlos. Gracias por creer en mí.

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ABTRACT OF THE DISSERTATION

PARENTAL INVOLVEMENT AND GROUP COGNITIVE BEHAVIORAL TREATMENT FOR ANXIETY DISORDERS IN CHILDREN AND ADOLESCENTS: TREATMENT SPECIFICITY AND MEDIATION EFFECTS OF PARENT AND PEER VARIABLES

by

Carla E. Marin

Florida International University, 2010

Miami, Florida

Professor Wendy K. Silverman, Co-Major Professor

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Phobic and anxiety disorders are one of the most common, if not the most common and debilitating psychopathological conditions found among children and adolescents. As a result, a treatment research literature has accumulated showing the efficacy of cognitive behavioral treatment (CBT) for reducing anxiety disorders in youth. This dissertation study compared a CBT with parent and child (i.e., PCBT) and child group CBT (i.e., GCBT). These two treatment approaches were compared due to the recognition that a child's context has an effect on the development, course, and outcome of childhood psychopathology and functional status. The specific aims of this dissertation were to examine treatment specificity and mediation effects of parent and peer contextual variables.

The sample consisted of 183 youth and their mothers. Research questions were analyzed using analysis of variance for treatment outcome, and structural equation

modeling, accounting for clustering effects, for treatment specificity and mediation effects.

Results indicated that both PCBT and GCBT produced positive treatment outcomes across all indices of change (i.e., clinically significant improvement, anxiety symptom reduction) and across all informants (i.e., youths and parents) with no significant differences between treatment conditions. Results also showed partial treatment specific effects of positive peer relationships in GCBT. PCBT also showed partial treatment specific effects of parental psychological control. Mediation effects were only observed in GCBT; positive peer interactions mediated treatment response. The results support the use CBT with parents and peers for treating childhood anxiety. The findings' implications are further discussed in terms of the need to conduct further meditational treatment outcome designs in order to continue to advance theory and research in child and anxiety treatment.

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CHAPTER I.

INTRODUCTION

Phobic and anxiety disorders are one of the most common, if not *the* most common psychopathological conditions reported in children and adolescents (Costello, Egger, Copeland, Erkanli, & Angold, in press). (Hereafter, children and adolescents are referred to as youth, unless when referring to a specific developmental stage.) A wide range of prevalence rates has been reported in both community and clinical samples. A recent review of the epidemiologic literature (Costello et al., in press) reveals that when functional impairment is considered, prevalence rates decline and the rates become more consistent across studies. This is especially true for specific phobias, though still remaining high. Costello et al. (in press) reported prevalence rates of 11% for any anxiety disorder for children between the ages of 6 and 12 years and 10.2% for adolescents between the ages of 13 and 18 years.

For most youth, experiencing fear and anxiety is a normative part of development (Last, Perrin, Hersen, & Kazdin, 1996). For some youth, however, fear and anxiety develop into psychopathological conditions that require psychosocial or psychiatric treatment. The developmental course of untreated anxiety disorders can lead to poor mental health outcomes later in life including other anxiety disorders, depressive disorders, and substance abuse (e.g., Cole, Peeke, Martin, Truglio, & Serocynski, 1998).

Psychosocial Interventions for Anxiety Disorders in Youth

A randomized control trial research literature has accumulated to help address the prevalent and impairing problems associated with youth anxiety disorders. This literature provides consistent and strong support for the efficacy of psychosocial treatments to

reduce anxiety and its disorders in youth. These studies are generally characterized by strong methodological rigor including the use of multisource assessments, structured diagnostic interview schedules, manualized treatment manuals, fidelity checks, and systematic follow-up assessments (see review by Silverman, Pina, and Viswesvaran, 2008).

Silverman et al. (2008) classified and evaluated 32 treatment studies following Chambless et al.'s (1996), Chambless and Hollon's (1998), and Nathan and Gorman's (2002) criteria for efficacious psychosocial treatments. A number of treatments met the "probably efficacious" and "possibly efficacious" criteria. All treatments involved exposure based procedures along with cognitive and behavioral procedures. These cognitive behavior treatments (CBTs) were found to be efficacious whether delivered individually to the youth, to the parent and youth together, and to youth using a group format.

This dissertation study focused on a CBT approach with parent and youth (i.e., referred to from hereon as parent-involvement cognitive behavioral treatment or PCBT) and youth group CBT (i.e., GCBT). These two treatment approaches were the focus because of the growing recognition that a youth's context including parents and peers has an effect on the development, course, and outcome of childhood psychopathology and functional status (Brent & Kolko, 1998; Silverman & Ollendick, 1999; Tolan, Guerra, & Kendall, 1995). Given the importance of a youth's context, clinical research efforts over the past two decades have been directed toward evaluating whether CBT used to treat anxiety disorders in youth is efficacious when particular contexts (i.e., parents, peers) are incorporated into the treatment program.

In the sections that follow in this Introduction, some background information is provided regarding the reduction of childhood anxiety and its disorders when parents and peers are incorporated within CBT. This is followed by a brief summary of the study's main research questions with respect to treatment specificity and treatment mediation. These issues are elaborated upon in more detail in Chapter II of the dissertation study.

CBTs Involving Parents and Peers. As noted, there is evidence that childhood anxiety disorders can be reduced when CBTs incorporate parents (e.g., Barrett, 1998; Barrett, Dadds, & Rapee, 1996; Kendall et al., 2008; Silverman, Kurtines, Jaccard, & Pina, 2009; Wood et al., 2006) and peers (e.g. Beidel, Turner, & Morris, 2000; Flannery-Schroeder & Kendall, 2000; Hayward et al., 2000; Silverman et al., 1999; Spence et al., 2000). Despite some slight variations in the parent-involvement treatment studies, most of the studies generally used the same therapeutic procedures. These procedures were teaching parents reinforcement strategies of the youth's anxious avoidant behaviors (e.g., Barrett, 1998; Barrett et al., 1996) and improving parents' (usually mothers') parenting behaviors and the parent-youth relationship (e.g., Barrett, 1998; Barrett et al., 1996; Silverman et al., 2009).

There were also some variations in the peer involvement treatment studies, though here too most of the studies used generally the same therapeutic procedures. These procedures involved promoting peer reinforcement/support for youths' successful handling of their fear/avoidant behaviors and improving youths' social skills behaviors and peer relationships (e.g., Barrett, 1998; Beidel et al., 2000; Flannery-Schroeder & Kendall, 2000; Hayward et al., 2000; Spence et al., 2000).

Treatment Specificity and Mediation. There is a markedly consistent pattern of positive treatment response in interventions that target variables that are relevant to parent and peer contexts (e.g., parenting behaviors, parent-youth relationships in parent interventions; youth social skills behaviors, peer-youth relationships in peer interventions). However, no study has evaluated whether parent and peer treatments that target these specific variables produce *specific effects* on these variables. That is, the following type of questions has not been asked in any comparative CBT youth anxiety treatment study: If parenting behaviors and the parent-youth relationship are targeted in PCBT, but *not* in GCBT, will PCBT produce specific effects on these parent variables? Conversely, if youth's social skill behaviors and the peer-youth relationship are targeted in GCBT, but not in PCBT, will GCBT produce specific effects on these peer variables?

Additionally, no study has evaluated whether it was the specific targeting of these variables that led to positive treatment response (i.e., mediated treatment response). Only one study (Alfano et al., 2009) evaluated whether changes produced on peer variables mediated treatment response. (This study is described later in Chapter II.) Similarly, only one study (Silverman et al., 2009) has evaluated whether changes produced on parent variables mediated treatment response (also described later). Thus, the aims of this dissertation study are to evaluate treatment specificity and treatment mediation in the context of a randomized clinical trial for anxiety disorders in youth and adolescents, which compared PCBT and GCBT.

Evaluating treatment specificity is important for the field because it allows for verification of fit between theory and practice and allows researchers to evaluate the role of a given variable in successful symptom reduction (e.g., Brent & Kolko, 1998). The

evaluation of treatment specificity has the potential to help toward designing and delivering psychosocial interventions that are maximally effective. This is because such evaluations can potentially lead to interventions that are not only effective in reducing youth's disorders/symptoms but also in improving the relevant youth contexts (e.g., the parent-youth relationship, the peer-youth relationship).

Evaluating treatment mediation is also important for several reasons, as delineated recently by Kazdin (2007). First, Kazdin noted that there are 550+ child and adolescent psychosocial treatments. Elucidating the mechanisms of change (i.e., mediators) can bring "order and parsimony" (Kazdin, 2007; p. 4) to the current status of numerous psychosocial treatments. Second, delineating the mediators of treatment response can clarify connections between what is done during treatment and the diverse outcomes of therapy (e.g., symptom reduction, improved functional status). Finally, knowledge of how changes in treatment occur, may allow clinicians to focus on techniques that will trigger the critical change processes. Such knowledge can advance theoretical understanding about the mechanisms by which interventions produce therapy effects (Baron & Kenny, 1986; Holmbeck, 1997). If the specific variables (i.e., the mediators) that result in youth's treatment response are identified, these variables can be included as components in the intervention. Variables found not to mediate can be excluded.

As MacKinnon put it, "Not all programs target all the mediators they set out to change and few research studies measure all of them. Nevertheless, the multiple mediator model is the theoretical basis of many prevention [and intervention] programs. The detailed examination of the contributions of multiple mediators to changes in a dependent variable may clarify the critical mediators as well as help resolve discrepancies among

studies." (MacKinnon, 2008, p. 104). In the current study, this assertion is recognized by the inclusion of two putative mediators in PCBT, as well as two putative mediators in GCBT (i.e., parenting behaviors and the parent-youth relationship in PCBT; social skills behaviors and the peer-youth relationship in GCBT).

In this dissertation study, two sets of hypotheses were tested. The first set of hypotheses was designed to empirically establish whether there are treatment specific effects. Thus, the first set of hypotheses tested is that PCBT would produce specific effects on parenting behaviors and parent-youth relationships, but not on youth social skills behaviors and peer-youth relationships. Conversely, it was hypothesized that GCBT would produce specific effects on youth social skills behaviors and peer-youth relationships, but not on parenting behaviors and parent-youth relationships.

The second set of hypotheses tested whether the changes that are produced on these variables mediate treatment response. Thus, the second set of hypotheses tested whether parenting behaviors, parent-youth relationships, youth social skills behaviors and/or peer-youth relationships are significant mediators of positive treatment response (i.e., anxiety reduction).

CHAPTER II.

LITERATURE REVIEW

There has been little research on whether parental involvement cognitive behavior treatment (PCBT) and youth group cognitive behavioral treatment (GCBT) interventions produce specific effects on the targeted parent and peer variables (i.e., is there treatment specificity?) and, more importantly, whether changes on these variables result in (i.e., mediate) postive treatment response. Consequently, claims regarding the importance of interventions that incorporate parents and peers and that target particular areas relevant to these respective contexts in youth anxiety treatment are based more on speculation than empirical data (Kazdin, 1999). In light of this, the present dissertation study can be viewed in part as a response to calls made in the treatment research literature regarding the need to not only emphasize outcome issues, but also treatment specificity and mediation issues (e.g., Kazdin, 2001; Kazdin & Kendall, 1998; Roth, Fonagy, & Parry, 1994; Silverman & Kurtines, 1997).

As noted, this dissertation study focused on treatment specificity and mediation in PCBT and a youth-group CBT intervention—GCBT. Past youth anxiety treatment studies that involved parents focused largely on comparing the relative efficacy of individual youth treatment versus youth treatment + parent-involvement (in an individual dyad or multifamily group format). Past youth anxiety treatment studies that involved peers focused largely on comparing the relative efficacy of GCBT to a waitlist control, with a couple of studies comparing GCBT to individual youth CBT.

In this chapter, the treatment studies that involved parents are summarized first, with an eye on whether the parent variables targeted in treatment changed as a result of

that targeting. This is followed by summarizing the peer treatment (or GCBT studies), with an eye on whether the peer variables targeted in treatment changed as a result of that targeting. As will be apparent shortly, the number of studies that actually reported treatment specificity effects on parent or peer variables is small. Finally, studies that evaluated treatment mediation are summarized. First, however, some brief background is provided regarding the linkages that have been found between parent variables and childhood anxiety, and peer variables and childhood anxiety.

Parent Variables Linked to Youth Anxiety

Parenting Behaviors. Parental control has been defined as parents exhibiting excessive control over their child's activities and decisions, as well as overprotection, and instructing them how to think or feel in various situations via guilt induction (e.g., Barber, 1996; Steinberg, Elmer, & Mounts, 1989). Chorpita and Barlow (1998) posited a theoretical model to help explain the link between parental control and youth anxiety. When parents are overcontrolling with their children (especially in developmentally appropriate tasks), youth may not acquire self efficacy in that task (see Bandura, 1988) which may lead to increased anxiety.

A recent review of the literature corroborated the linkage between parenting behaviors and childhood anxiety (see McLeod, Wood, & Weisz, 2007). McLeod et al.'s (2007) review included 47 studies that evaluated the relation between parenting behaviors and youth anxiety. For example, Siqueland et al. (1996) found that parents of children with anxiety disorders were more controlling than parents of children without anxiety disorders and were less likely to grant autonomy (i.e., to be more controlling) than parents of children without anxiety disorders. In another study, Whaley, Pinto, and

Sigman (1999) found that anxious mothers of anxious youth were rated as less likely to grant control than anxious mothers of youth without anxiety disorders.

*Parent-Youth Relationships***.** The parent-youth relationship has also been widely studied with respect to youth anxiety outcomes. Several studies have found that the parent-youth relationship of youth with anxiety disorders is characterized as negative and lacking appropriate communication and problem solving skills (e.g., Ginsburg, Silverman, & Kurtines, 1996; Rapee, 1997; Silverman, Cerny, & Nelles, 1988). For example, Barrett et al. (1996) found that youth with anxiety disorders and their parents generated more avoidant solutions in problem-solving situations relative to aggressive and nonclinical controls. Kearney and Silverman (1995) found that the parent-youth relationship of school refusing youth (with the majority of these youth meeting criteria for an anxiety disorder) was problematic. Specifically, these families scored high on indices of hostility and conflict and showed poor communication skills. Similarly, Hudson and Rapee (2005) found that anxious youth tend to have parents who engage in negative and critical behaviors towards them. Wood, Piacentini, Southam-Gerow, Chu, and Sigman (2006) found that parent-youth conflict also is associated with youth anxiety disorders. Others have found similar results (e.g., Bernstein & Garfinkel, 1986, 1988; Last & Strauss, 1990).

Peer Variables Linked to Youth Anxiety

Youth Social Skills Behaviors. In the youth anxiety literature, youth with anxiety disorders have been found to have less social skills behaviors relative to youth without anxiety disorders (e.g.,Beidel, Turner, & Morris, 1999; Spence et al. 1999; Strauss, Lease, Kazdin, Dulcan, & Last, 1989; Verduin & Kendall, 2008). For instance, in Beidel,

Turner, and Morris (1999), youth diagnosed with social phobia were rated as having poor social skills behaviors by observers when the youth were participating in a conversation. Similarly, research has found that when anxious youth are in novel situations, many times they display poor social skills behaviors in these situations (see Spence et al. 1999). Other researchers have found that anxious adolescents, display poor social skills behaviors with peers compared to adolescents without anxious symptoms, as rated by parents (Panella & Henggeler, 1986).

Peer-Youth Relationships. The peer-youth relationship has also been studied with respect to youth anxiety outcomes. Research has shown that problematic peer relationships are linked with negative mental health outcomes in youth (Parker & Asher, 1987). For example, youth who are isolated and rejected by their peers have high rates of internalizing problems such as depression, anxiety, and loneliness (e.g., La Greca & Stone, 1993; Strauss, Lahey, Frick, Frame, & Hynd (1988). In Strauss et al. (1988), youth with anxiety disorders were nominated by their peers as "neglected" relative to youth with conduct disorder or youth without anxiety disorders. Youth with anxiety disorders were also less likely to be nominated by their peers as "most liked," in the same study. Ginsburg, La Greca, and Silverman (1998) also found that youth with social phobia had troubled friendship patterns.

Anxiety may also have an impact on peer relationships because young children have been shown to ignore peers who display an anxious demeanor (Younger, Gentile, & Burgess, 1993). Later in middle childhood, anxious children are often actively rejected by their peers compared to children without anxious features (see French, 1988; Rubin et al. 1989).

Parental Involvement in Youth Anxiety Treatment

The treatment studies that involved parents are summarized in this section; of particular interest is whether the parent variables targeted in treatment changed as a result of that targeting. The treatments summarized here were delivered in different formats and compared the relative efficacy of individual youth treatment versus youth treatment + parent-involvement (in an individual dyad or multifamily group format). Of note is that studies that involved parents only and not the family unit were abbreviated as PCBT; studies that involved parental involvement in a family context were abbreviated as FCBT. Also, unless otherwise indicated, all parent ratings were mainly completed by mothers.

One of the first studies conducted was Barrett et al. (1996). Barrett et al. evaluated the efficacy of Individual CBT (ICBT; $n = 28$), ICBT plus Family Management (PCBT) ($n = 25$), and a waitlist control condition (WL; $n = 26$) in a sample of 79 youth (ages 7 to 14 years; *M* and *SD* were not reported). The specific parent variable that was targeted in PCBT and that is relevant to this dissertation study was the parent-youth relationship.

Results revealed that at posttreatment, 69.8% of the youth in ICBT and PCBT did not meet diagnostic criteria for an anxiety disorder relative to 26% of youth in the WL condition. There was a statistically significant difference between ICBT and PCBT on diagnostic recovery rates: 57.1 % for ICBT versus 84.0% for PCBT. Results also revealed that at posttreatment both ICBT and PCBT showed significantly more improvement than the WL condition on the Fear Survey Schedule for Children - Revised (FSSC-R; Ollendick, 1983), the Children's Depression Inventory (CDI; Kovacs, 1992), mother and father's ratings on the Child Behavior Checklist Internalizing (CBCL-I;

Achenbach, 1991) and Externalizing scale (CBCL-E). Statistically significant differences between ICBT and PCBT were only found on the FSSC-R.

In addition, youth in ICBT and PCBT reported significantly decreased avoidant plans compared to the WL condition on two ambiguous situations (i.e., a physical situation and a social situation) that were discussed by the parent and youth. Further, youth in PCBT reported significantly fewer threat interpretations and fewer avoidance responses than youth in ICBT and in the WL condition, in this same task. At the 12-month follow-up assessment point, treatment gains were maintained for both conditions; there also continued to be statistically significant differences between ICBT and PCBT both on diagnostic recovery rates and the FSSCR. The authors did not measure the quality of the parent-youth relationship at pre or posttreatment and thus issues of treatment specificity or mediation could not be pursued with respect to this parent variable. PCBT was only found to be superior over ICBT on one of the outcome measures (i.e., FSSCR) and on diagnostic recovery rates. It is unknown whether the targeting of parent-youth relationship led to (i.e., mediated) the study's observed positive treatment response.

In a subsequent study, Barrett (1998) evaluated the efficacy of GCBT (n = 23) and GCBT plus Family Anxiety Management (G-PCBT; n = 17), relative to a WL control condition (n = 20) in sample of 60 youth (ages 7 to 14 years; *M* and *SD* were not reported). The specific parent variable that was targeted in G-PCBT and that is relevant to this dissertation study was improving the parent-youth relationship (i.e., communication and problem solving skills).

Results revealed that at posttreatment 64.8% of the youth in GCBT and G-PCBT did not meet diagnostic criteria for an anxiety disorder relative to 25.2% of youth in the WL condition with no statistically significant differences between GCBT and G-PCBT. Additionally, both treatment conditions showed significantly more pre to posttreatment improvement than the WL condition on the youth's FSSC-R ratings, mother and father CBCL-I and CBCL-E ratings, and clinicians' ratings of diagnostic severity. Statistically significant differences between GCBT and G-PCBT were found on clinicians' ratings of diagnostic severity and youth's FSSC-R ratings with participants in G-PCBT showing significantly greater improvements than GCBT participants.

Treatment gains were maintained at one year follow-up across all measures. Participants in G-PCBT showed significantly greater improvements than participants in GCBT on the diagnostic severity ratings and FSSC-R ratings, as well as on six of the seven clinical evaluation scales (i.e., overall functioning, overall anxiety, avoidant behaviors, change of family disruption by the youth's behavior, change in parent's perception of own ability to deal with youth's behaviors, and change of youth's ability to deal with difficult situations).

Similar to Barrett et al.'s (1996) study, Barrett (1998) did not measure the quality of the parent-youth relationship at pre or posttreatment and thus issues of treatment specificity or mediation could not be pursued with respect to this parent variable. Additionally, G-PCBT was only superior to GCBT on the FSSC-R and on the clinical evaluation scales and not across any of the other outcome measures.

In Bögels and Siqueland (2006), 17 youth and their families (ages 8 to 17 years; M = 12.7 years; SD = 2.1) with primary DSM-IV anxiety diagnoses, participated in an

open trial of Family CBT (FCBT). This open trial is relevant to this dissertation study given that parenting behaviors (i.e, parental control) and the parent-youth relationship (i.e., improving communication and problem-solving skills) were both targeted and measured in this study.

Results revealed that 46% of youth no longer met criteria for their targeted diagnosis. Significant pre to posttreatment changes were observed on the mother and father rated Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher, Khetarpal, Brent, Cully, Balach, Kaufman, et al., 1997) and the mother rated Internalizing and father rated Externalizing subscales of the CBCL (Achenbach, 1991). Treatment gains were maintained at the 3- and 12-month follow-up assessment points on all youth and parent rating scales. In terms of the parent variables, no significant pre to post treatment changes were observed. Although some changes on the parent variables were observed at posttrement (i.e., engaging in less psychological control, as reported by mothers; improvement on the parent-youth relationship, as reported by youth), these improvements were no longer statistically significant after applying Holm-Bonferroni corrections. Because there was no comparison condition, treatment specificity could not be pursued. Treatment mediation also was not pursued given the lack of significant pre to posttreatment changes on the parent variables.

In another study, Wood et al. (2006) evaluated the efficacy of parent-involvement CBT (PCBT; n = 19) and ICBT (n = 19) in a sample of 38 youth (ages 6 to 13 years; M = 9.83, SD = 2.19) and their primary parent defined as the primary caregiver. The parent variable targeted in PCBT was autonomy granting (i.e., decreasing parental control); this

variable was not measured in this study. Thus, treatment specificity and meditation issues could not be pursued.

Posttreatment results revealed diagnostic recovery rates were 78.9% for PCBT and 52.6% for ICBT (not statistically significant difference). For both PCBT and ICBT treatments, significant pre to posttreatment changes were observed on the youth and parent Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997). However, parents in PCBT rated their children as significantly more improved than parents of children in ICBT in terms of anxiety symptoms. This was not found with the youth completed MASC. With respect to improvement of youth anxiety symptoms, 78.9% of youth in PCBT and 26.3% of youth in ICBT were rated by clinicians as "completely recovered or very much better," on the Clinician's Global Improvement scale (CGI; National Institutes of Health, 1985). The difference on improvement of youth anxiety symptoms between PCBT and ICBT was statistically significant. No follow-up data were reported.

De Groot, Cobham, Leon, and McDermott (2007) also evaluated the efficacy of parent-involvement CBT (PCBT; n = 14) and group parent-involvement CBT (G-PCBT; n = 15) in a sample of 29 youth (ages 7 to 12 years; M = 8.86; SD not reported). The parent variable targeted in both treatment conditions and that is of interest to this dissertation study was the parent-youth relationship (i.e., improving problem solving skills). This variable was not measured in either treatment condition. Thus, treatment specificity and meditation issues could not be pursued.

Results revealed that at posttreatment, 57% youth in PCBT did not meet diagnostic criteria for an anxiety disorder compared to 47% of youth in G-PCBT (not

statistically significant). Significant pre to posttreatment changes were observed on the study's main outcome measure, the youth completed Spence Children's Anxiety Scale (SCAS; Spence, 1998). Statistically significant improvements were also observed on the parent completed Strengths and Difficulties Questionnaire –Total Emotional subscale score (SDQ; Goodman, 1997, 1999) with no significant differences between treatment conditions. Treatment gains were maintained at the 3-month follow-up assessment point with no significant differences between treatment conditions on the questionnaire data. At the 6-month follow-up, diagnostic recovery rates were 50% and 53% for PCBT and G-PCBT, respectively.

Bodden et al. (2008) evaluated the efficacy of ICBT (n = 64) and PCBT (n = 64) in a sample of 128 youth (8 to 17 years; M = 12.4 years; SD = 2.7) referred to community mental health centers (91% of fathers and 98% of mothers participated in FCBT). The parent variables targeted in FCBT were increasing autonomy granting (i.e., reducing parental control) and improving the parent-youth relationship. Once again, these variables were not measured in this study. Thus, treatment specificity and mediation issues could not be pursued.

PCBT was not found to be superior to ICBT and was in some cases inferior to ICBT (e.g., where at least one parent had an anxiety disorder). With respect to diagnostic recovery rates, 53% of youth in ICBT no longer met diagnostic criteria for their primary anxiety diagnosis compared to 28% in PCBT, a statistically significant difference. Significant pre to post treatment changes were observed on the outcome measures (e.g., SCARED, STAI, Children's Automatic Thoughts Scale (CATS, Schniering & Rapee, 2002, and CBCL-I) with no significant differences between treatment conditions.

Treatment gains were maintained at the 3-month follow-up assessment point, with 52% of youth no longer meeting criteria for any anxiety disorder. However the superior effect of ICBT over PCBT was no longer significant.

Kendall et al. (2008) evaluated the efficacy of ICBT (n = 55), PCBT (n = 56), and family-based education/support/attention (FESA; n = 50) in a sample of 161 youth (ages 7 to 14 years; *M* = 10.27; *SD* was not reported). The parent variable targeted in PCBT and that is of interest to this dissertation study, was the parent-youth relationship. Again, this variable was not measured in this study. Thus treatment specificity and mediation issues could not e be pursued.

Diagnostic recovery rates for primary anxiety diagnoses were 64%, 64%, and 42% for ICBT, PCBT, and FESA. Diagnostic recovery rates for anxiety anywhere in the diagnostic profile were 57%, 55%, and 37%, for ICBT, PCBT, and FESA. Significant pre to posttreatment changes were observed on the MASC and the Coping Questionnaire for Children (CQ-C; Kendall & Marrs-Garcia, 1999), with no significant differences between ICBT, PCBT and FESA. At one year follow-up, diagnostic recovery rates for youth who no longer displayed anxiety as a principal diagnosis were ICBT-67%, PCBT-64%, and FESA-46%. Diagnostic recovery rates for youth who did not have any anxiety disorder at one year follow-up were ICBT-61%, PCBT-58%, and FESA-44%. Normative comparisons were done and were not shown to be significant. Overall, youth in all three treatment conditions reported less anxiety symptoms and greater coping skills at posttreatment. Youth in ICBT and PCBT showed statistically significant fewer anxiety symptoms than youth in FESA with no significant differences between ICBT and PCBT.

Summary of Studies Involving Parents in Youth Anxiety Treatment. The treatment studies summarized in this section provide empirical evidence that anxiety disorders in youth are significantly reduced when parents are involved. However, most of the studies summarized did not provide support for the enhanced effects of parental involvement in the youth's treatment. Moreover, when significant enhanced effects were found, they were generally inconsistent across measures, informants, or both (e.g., Barrett et al., 1996; Barrett, 1998, Wood et al., 2006).

Of particular relevance to this dissertation study is the issue of treatment specificity and mediation. As the above review makes clear, although parent variables were specifically targeted in seven studies, only in one study (i.e., Bögels & Siqueland, 2006), were the parent variables that were targeted (i.e., parental psychological control, the parent-youth relationship) actually measured. No significant effects were observed on these parent variables from pre to post treatment or followup when the Holm-Bonferroni method was applied. However, Bögels & Siqueland, 2006), was an open trial and had a small N. The results are interesting, nevertheless, as this is one of only two studies (the other study being Silverman et al., 2009) to have actually measured the parent variables they were targeted for change.

Peer Involvement in Youth Anxiety Treatment

The treatment studies that involved peers are summarized in this section; of particular interest is whether the peer variables targeted in treatment changed as a result of that targeting. The treatments summarized here were delivered in different formats and compared the relative efficacy of GCBT to a waitlist control, with a couple of studies comparing GCBT to individual youth CBT.

Beidel, Turner, and Morris (2000) evaluated the efficacy of Social Effectiveness Training for Youth (SET-C; *n* = 30*)* relative to Testbusters (the control condition; *n* = 20) in a sample of 50 youth (ages 8 to 12 years; *M* = 10.5 years; *SD* = 1.5) with a primary diagnosis of DSM-IV SOP. The peer variables targeted in SET-C and that are relevant to this dissertation study were improving the peer-youth relationship and youth social skills behaviors. The quality of the peer-youth relationship was measured using the Loneliness Scale (LS; Asher & Wheeler, 1985), which measures the degree to which youth feel isolated by their peers and socially dissatisfied. Youth social skills behaviors were measured by behavioral observations in which chidren were rated by trained observers while they engaged in five different role playing tasks (e.g., starting a conversation, offering help, giving compliments, receiving compliments, responding assertively). Trained observers also rated child anxiety when children engaged in a read aloud task.

At posttreatment, 67% of SET-C children no longer met criteria for SOP compared to 5% in Testbusters. Significant pre to post changes were found only for participants in SET-C d on the following measures: Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1968), the SPAI-C, CBCL-I, clinicians' C-GAS and diagnostic severity ratings, as well as the behavior observation ratings. Diagnostic recovery rates also showed continued significant improvements (from 67% at posttreatment to 85% at 6-month follow-up.

Interestingly, children in both the control condition, Testbusters, *and* in SET-C showed significant pre to post changes on the STAIC-T/S and the Loneliness Scale (LS; Asher & Wheeler, 1985), suggesting a lack of specificity of SET-C in terms of the peer variables that were targeted, with no significant differences between the two treatments.

Youth in both conditions also showed significant pre to post changes improvement on the observer ratings during the read aloud behavior observation task. No significant pre to posttreatment effects were found on the role playing task (which measured youth social skills behaviors). The finding that youth in both conditions improved on the LS and on the read aloud task at posttreatment could be because youth in the Testbusters condition interacting with other peers and practicing reading aloud. Results further indicated that youth in SET-C continued to show treatment gains at 6-month follow-up on all rating scales. Treatment mediation was not investigated.

In Flannery-Schroeder and Kendall (2000), the efficacy of ICBT (n = 13), GCBT (n = 12), and a waitlist (n = 12) condition were evaluated in a sample of 37 youth (8 to 14 years; M and *SD* were not reported). Peer variables were not directly targeted in GCBT, though the authors explained that given that CBT was delivered in a group context, there would be opportunities to improve the peer-youth relationship, as well as youth social skills behaviors. However, these variables were not measured in this study. Thus treatment specificity and mediation issues could not be pursued.

At posttreatment, diagnostic recovery rates for the active treatment conditions, ICBT and GCBT, were 73% and 50%, respectively (not statistically different), relative to 8% in the waitlist condition. Significant pre to post changes were observed for treated youth on the STAIC-T, RCMAS, CQ-C, CDI, and mother and father completed STAIC – T/P, CQ-P (parent version of the CQ; Kendall & Marrs-Garcia, 1999), and father completed CBCL-I. It is not surprising that there was not a change on the CBCL Social Activities Scale because neither treatment condition directly targeted social skills behaviors and only a small number of participants had a primary diagnosis of SOP.

Significant pre to posttreatment improvements were observed on the STAIC – State for the ICBT condition only. Treatment gains were maintained for both ICBT and GCBT with no significant differences between the two conditions at the 3-month follow-up assessment point on diagnostic recovery rates and on all rating scales. It is unclear why the authors hypothesized that GCBT would have greater effects on social skills behaviors when these were not targeted directly in GCBT.

Hayward et al. (2000) evaluated the efficacy of GCBT (n = 12) to No Treatment (n = 23) in a sample of 35 adolescent females (age range not reported; M = 15.8 years, SD = 1.6) diagnosed with DSM-IV SOP. It is important to note that participants in GCBT were assessed at pretreatment, posttreatment, and 12-month follow-up, whereas participants in the No Treatment condition were assessed at pretreatment, 5 and 12 months later. The peer variables targeted in GCBT and that are relevant to this dissertation study were youth social skills behaviors and the peer youth relationship; these variables were not measured in this study. Thus treatment specificity and mediation issues could not be pursued.

Results revealed that in terms of diagnostic recovery rates, 45% of youth in GCBT did not meet criteria for SOP at posttreatment, relative to 4% of participants in the No Treatment condition at 5-month follow-up. Significant pre to posttreatment changes were observed on the Social Phobia and Anxiety Index (SPAI; Turner, Stanley, Beidel, & Bond, 1989) and on adolescent and parent ratings of SOP symptoms on the ADIS-IV: C/P for GCBT participants. There were no significant changes in the No Treatment condition from pretreatment to 5-month follow-up on any of these measures.

At the 12-month follow-up, 40% of youth in GCBT had a diagnosis of SOP relative to 56% in the No Treatment condition (difference not statistically significant). Pre to posttreatment gains on the SPAI were not maintained at 12-month follow-up for participants in GCBT. An explanation for this, as noted by the authors, could be related to the study's sample characteristics. Some of the participants had experienced episodes of major depression during the course of the study, and this may have enhanced the effects of SOP. Conversly, it is possible that SOP enhanced the effects of major depression.

Spence et al. (2000) randomized 50 youth (ages 7 to 14 years; *M* and *SD* were not reported**)** diagnosed with SOP to GCBT (*n* = 19)**,** GCBT plus Parent-Involvement (P-GCBT; *n* = 17), or a WL (*n* = 14). The peer variable that was targeted in P-GCBT and that is relevant to this dissertation study was youth social skills behaviors.

Results revealed that at posttreatment diagnostic recovery rates in GCBT and P-GCBT were greater than in the WL condition (58%, 87.5%, and 7%, respectively). Significant pre to posttreatment changes were observed for youth in the GCBT and P-GCBT on the youth completed RCMAS, Spence Children's Social Anxiety Scale (Spence, 1997), and Social Worries Questionnaire (Spence, 1995), and the parent completed Social Skills Questionnaire (Spence, 1995) and Social Competence Questionnaire (Spence, 1995), with no significant differences on these measures across the two active treatments. Treatment gains were maintained for both conditions at 6- and 12-month follow-up.

In Rapee, Abbott, and Lyneham (2006), the efficacy of GCBT with parental involvement (*n* = 90), Bibliotherapy (*n* = 90), and a WL (*n* = 87) were evaluated in sample of 267 youth (6 to 12 years; *M* and *SD* were not reported for the total sample). The peer variable that was targeted in GCBT and that is relevant to this dissertation study was youth social skills behaviors (i.e., assertiveness training and coping with teasing at school). Again, these variables were not measured in this study. Thus, treatment specificity and mediation issues could not be pursued. In Bibliotherapy, parents were instructed to conduct the treatment at home with the aid of self-help materials. Specifically, parents were provided with *Helping your anxious child: A step-by-step guide* (Rapee, Spence, Cogham, & Wignall, 2000). Note that although parents were involved, neither parenting behaviors nor the parent-youth relationship were targeted in GCBT or Bibliotherapy.

At posttreatment, diagnostic recovery rates were 61.1%, 25.9%, and 6.7% for GCBT, Bibliotherapy, and the WL condition, respectively. Significant pre to post changes were observed on clinicians' ratings of diagnostic severity, youth self-ratings on the SCAS and the CATS (Schniering & Rapee, 2002) and parent Spence Children's Anxiety Scale (SCAS; Nauta, Scholing, Rapee, Abbott, & Spence, 2004), CBCL-I, and CBCL-E ratings for youth in GCBT but not in the waitlisted condition. The findings for Bibliotherapy were not as clear as the findings for GCBT. The authors employed intent-to-treat analyses and found that participants in Bibliotherapy showed no improvement, similar to the findings reported for the waitlisted condition. However, when intent-to-treat analyses were not employed, youth in Bibliotherapy showed more improvement than youth in the WL condition; nevertheless, these improvements were still inferior to

improvements shown with participants in GCBT. Treatment gains were maintained a 3-month follow-up, with youth in GCBT continuing to show greater improvements than youth in Bibliotherapy.

Summary of Studies Involving Peers in Youth Anxiety Treatment. The treatment studies summarized in this section provide empirical evidence that anxiety disorders in youth are significantly reduced when peers are involved. However, most of the studies summarized did not provide support for the enhanced effects of peer involvement over individual CBT in the youth's treatment. Moreover, when significant enhanced effects were found, they were generally inconsistent across measures, informants, or both (e.g., Bodden et al. 2008; Flannery-Schroeder & Kendall, 2000).

Of particular relevance to this dissertation study is the issue of treatment specificity and mediation. As the above review makes clear, although peer variables were specifically targeted in five studies, only in two studies (i.e., Beidel et al., 2000; Spence et al., 2000), were the two peer variables that were targeted (i.e., youth social skills behaviors and the peer-youth relationship) actually measured. Treatment specificity effects were not found in these two studies (i.e. peer variables improved in *all* the treatment conditions in both Beidel et al., 2000 and Spence et al., 2000). It would have been difficult to evaluate treatment specicity effects, however, given that these studies did not include a comparison condition that did *not* target the peer variables assumed to have been impacted by GCBT. For example, Beidel et al. (2000) compared the active GCBT condition against a control condition and Spence et al. compared GCBT againts against another GCBT condition with some parental involvement.

Of the studies summarized, only one of these studies compared GCBT to another active treatment condition (Flannery-Schroeder & Kendall, 2000) and found that for the most part, there were no significant differences between GCBT and ICBT on diagnostic recovery rates or on outcome measures. Again, it is unclear if treatment had an effect on the peer varaibles targeted given the lack of peer measures.

Related Research on Treatment Specificity. Given the paucity of research conducted in the childhood anxiety treatment research area focusing on the issues of treatment specificity, a study that focused on this issue in a sample of inpatient depressed adolescents (ages 13 to 18 years; M = 15.6 years; SD = 1.4) is briefly summarized here. Kolko, Brent, Baugher, Bridge, and Birmaher (2000) compared the efficacy of CBT, systematic behavioral family therapy (SBFT) and nondirective supportive therapy (NST) for reducing adolescent depression.

At posttreatment, CBT showed a specific effect on one of two cognitive variables, cognitive errors as measured by the Children's Negative Cognitive Errors Questionnaire (CNCEQ; Leitenberg, Yost, & Carroll-Wilson, 1986). CBT did not produce specific effects on hopelessness, as measured by the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974). Findings also revealed that SBFT had a greater effect on family functioning than NST, but so did CBT. Thus, there were no specific treatment effects of SBFT on those targeted family variables. Relatedly, CBT also showed a greater effect on two other family variables (behavioral control and marital satisfaction) relative to NST; SBFT did not exert any effects on these variables. SBFT showed a specific effect on one of the family variables (family conflict) at 2 year follow-up, but so did NST. Treatment mediation analyses were not pursued because of the

absence of significant Treatment x Time interaction effects in depression. In sum, the one study conducted in a related area (i.e., adolescent depression) found *some* evidence for treatment specificity, with respect to cognitive errors only changing in CBT as expected, but not in SBFT.

Summary of Treatment Specificity Studies. Despite its importance, treatment specificity remains insufficiently addressed in youth treatment research, including youth anxiety treatment research. It was suprising that the vast majority of the clinical trials incorporating parents and peers did not measure the parent and peer variables that they targeted. Needless to say, issues of treatment specificity or mediation were not purused.

Additionally, many of the clinical trials that incorporated parents and peers compared the active treatment condition against a control or WL. To more appropriately evaluate treatment specificity it is useful to compare a given condition (e.g., a condition that targets youth social skills behaviors and not parenting behaviors -- GCBT) to an alternative condition (e.g., a condition that targets parenting behaviors and not youth social skills behaviors -- PCBT) than to some other type of control condition (e.g., Bibliotherapy, WL, or treatment as usual). In this type of comparison, a significant Intervention by Time interaction provides a direct test of the respective interventions on the respective targeted parent and peer variables. Thus, each intervention (PCBT vs. GCBT) in the present dissertation study serves as an alternative comparison for the other in evaluating specific effects. Having two active treatment conditions provides the design with internal validity in that it permits the drawing of valid conclusions regarding the specific effects of treatment.

Treatment Mediation

Only a small number of studies have systematically evaluated mediators of treatment response. Four studies in the childhood anxiety treatment research literature investigated mediators of treatment response (Alfano et al., 2009; Kendall & Treadwell, 2007; Silverman et al. 2009; Treadwell & Kendall, 1996). Two of these studies investigated the role of youth's cognitions as a mediator of youth anxiety treatment outcome (Treadwell & Kendall, 1996; Kendall & Treadwell, 2007). Even though youth's cognitions are not variables of interest in this dissertation study, these two studies are briefly summarized below in light of the scarcity of published work on treatment mediators. The other studies summarized relates to this dissertation's interest in investigating mediators of parent-involvement CBT (i.e., Silverman et al., 2009) and youth group treatment (i.e., Alfano et al., 2009).

Cognitive Variables as Treatment Mediators. Treadwell and Kendall (1996) evaluated the mediating role of negative self-statements, positive-self statements, and state-of-mind (SOM; Schwartz & Garamoni, 1986; i.e., the proportion of positive versus negative self-statements) ratios in youth anxiety. The sample consisted of 151 youth (ages 8 to 13 years; $M = 11.7$, *SD* was not reported); 71 of these youth were clinic referred and were included in the mediational analysis; the remaining 80 youth were community volunteers with normal levels of anxiety, internalizing and externalizing problems, and depression as measured by standardized measures, whose data were not included in the mediatonal analysis. Youth with anxiety disorders were randomized into a WL or CBT (see Kendall, 1994). Pre-treatment measurements showed that the youth with anxiety disorders reported greater numbers of negative self-statements and lower

SOM ratios. Significant pre to posttreatment improvements were observed in negative self-statements, positive self-statements, and SOM ratios for the treated youth. The primary finding of the study was that negative self-statements and SOM ratios were significant predictors of anxiety. On the other hand, positive self-statements had no significant predictive value. In terms of treatment mediators, negative self-statements mediated youth reported anxiety but did not on parent or teacher reports of diagnostic status. SOM ratio also mediated anxiety after treatment. Positive self statements did not mediate positive treatment response.

Kendall and Treadwell (2007) again found that changes in negative self-statements mediated treatment response. They also found that changes in SOM ratios mediated treatment response, as measured by the RCMAS only.

Parent Variables as Treatment Mediators. In Silverman et al. (2009), the efficacy of ICBT (n = 48) with minimal parental involvement was compared parental involvement CBT (PCBT; n = 40) in a sample of 119 youths (aged 7 to 16 (M = 9.93, SD = 2.75). Of the 119 mothers who were randomized into treatment, 39.7% met full or sub-threshold criteria for *DSM-IV* anxiety disorders (using the ADIS). The parent variable targeted in CBT and that is of interest to this dissertation study was the parent-youth relationship.

In terms of clinically significant improvement, 78.4% of youths across both treatment conditions did not have their primary diagnosis present at posttreatment. Pre to posttreatment improvements were also observed on all primary (RCMAS; Reynolds & Richmond, 1978) and secondary outcome measures (CBCL-Anxious/Depressed subscale; Achenbach, 1991), with no significant differences between treatment conditions. These improvements were maintained at follow-up.

In terms of the parent variables, parent anxiety was reduced across both treatment conditions, even though parental anxiety was not targeted in CBT. These effects did not differ as a function of treatment condition. There were also statistically significant pre to posttreatment changes in the youths' appraisal of the parent's positive/negative behaviors (as measured by the Conflict Behavior Questionnaire-Appraisal of Parent; CBQ-P; Prinz, Foster, Kent, & O'Leary, 1979) and conflict in the parent-youth relationship (CBQ-D; Prinz et al. 1979) in CBT. Again, these parent variables were not targeted in CBT. For CBT/P, statistically significant pre to posttreatment changes were observed on the CBQ-P and not on the CBQ-D. These effects did not vary as a function of treatment condition. Silverman et al. (2009) also preliminarily pursued the intriguing question of directionality of effects (i.e., parent to child, child to parent, or bidirectionality). Given this issue was not a focus of the current study, this issue of directionality is discussed only later in the Discussion section.

Peer Variables as Treatment Mediators. Alfano et al. (2009) is the only study to evaluate mediators and moderators of treatment outcome in the behavioral treatment of SOP in a sample of 88 youths (ages 7 to 17 years; *M* and *SD* were not reported). The data from these youths were derived from two previously published randomized clinical trials (Beidel, Turner, & Morris, 2000, $n = 31$ and Beidel, Turner, Sallee, Ammerman, Crosby, & Pachak, 2007, $n = 57$). The authors also evaluated the potential moderating roles of youth age and depressive symptoms. They hypothesized that older youth and higher levels of depressive symptoms would moderate treatment response. Results revealed that only changes in youth-reported loneliness mediated treatment response for only one of the study's main outcome measures (e.g., Social Phobia and Anxiety

Inventory for Youth; Beidel, Turner, & Morris, 1995). Treatment response was not moderated by youth's age or youth's depressive symptoms, as hypothesized. This may be explained by insufficient statistical power given that relatively large sample sizes are needed to detect moderator effects.

Summary of Treatment Mediation Studies. Although the studies summarized above are interesting in that they are the first to identify mediators of treatment response, only Alfano et al. (2009) and Silverman et al. (2009) are relevant to this dissertation study. Alfano et al. demonstrated that one of their hypothesized peer variables (i.e., peer-youth relationship) mediated treatment response, though on only of the study's main outcome measures. Social skills behaviors, as hypothesized, did not mediate treatment response with any of the study's main outcome measures. Similarly, Silverman et al. demonstrated that one of their hypothesized mediators (the parent-youth relationship) mediated treatment response. As noted though, there was some evidence to show that the direction of change was not from parent to youth only (the traditional view), but also youth to parent.

The Present Study

The present study evaluated whether PCBT and GCBT, which target parenting behaviors and the parent-youth relationship in PCBT and youth social skills behaviors and the peer-youth relationship in GCBT, produce specific effects on these variables. The present study also investigated whether changes produced on these variables mediated treatment response in each of the respective treatment conditions.

Accordingly, the specific aims of this dissertation study were to test two sets of hypotheses. These hypotheses are depicted in Figure 1. The first set of hypotheses was

designed to establish empirically whether there were specific treatment effects. Thus, the first set of hypotheses was that PCBT would produce specific effects on parenting behaviors and parent-youth relationships, not on youth social skills behaviors and peer-youth relationships. GCBT, in contrast, was hypothesized to produce significant specific effects on youth social skills behaviors and peer-youth relationships, not on parenting behaviors and parent-youth relationships.

The second set of hypotheses tested in this study was whether changes produced on these variables mediate treatment response. Thus, the second set of hypotheses tested was that parenting behaviors, parent-youth relationships, youth social skills behaviors and/or peer-youth relationships would be significant mediators of treatment response, i.e., youth anxiety reduction. These hypotheses are tested within each condition and as a consequence, a comparison or control condition is not required for the testing of these hypotheses. That is, within the PCBT condition, the theoretically predicted parent variables (or the theoretically not predicted peer variables) either mediate treatment response or they do not. Similarly, within the GCBT condition, the theoretically predicted peer variables (or the theoretically not predicted parent variables) either mediate treatment response or they do not.

CHAPTER III.

METHODODLOGY

Participants

Participants consisted of 240 youth (ages 6 to 16 years; *M* = 9.81; *SD* = 2.28) and their parents (mostly mothers) who presented to the Child Anxiety and Phobia Program (CAPP) at Florida International University, an anxiety disorders specialty research clinic, for difficulties with fears and/or anxiety. The age range of the participants in this current study is comparable with the age range of previous randomized clinical trials (e.g, Barrett et al., 1998; Kendall, 1994). After attrition, the number of treatment completers was 183. There was no differential attrition across treatment conditions (PCBT = 26.7% and GCBT = 23.1%). These rates are comparable with rates reported by other U.S. investigators in the youth anxiety area (e.g., Kendall, 1994). The present study analyzed data for the treatment completed sample.

Treatment completers and non-completers were compared at pretreatment using chi-square tests and t-tests along the following sociodemographic and clinical variables: socioeconomic status, parent's marital status, youth ethnicity, youth age, youth sex, interference rating on the youth's primary/target diagnosis, and youth's pretreatment anxiety levels. There were no statistically significant differences between completers and non-completers, with the exception of marital status [$\chi 2$ (1) = 17.44, $p < .001$]. More completer participants than non-completers were from families in which the mothers were in intact marriages.

This dissertation study provides pre, post and treatment specificity and mediation effects for 183 treatment completers (ages 6 to 16 years; *M* = 9.72; *SD* = 2.21) and their

parents. Table 1 provides sociodemographic information of the participants who completed the treatment. As shown in Table 1, the youths' age range of 6 to 16 years reflects the modal age range of the age of onset of separation anxiety disorder (SAD), social phobia (SOP), specific phobia, (SP), and generalized anxiety disorders (GAD) in the population and is reflective of CAPP's referral patterns.

The study's inclusion criteria included the following, all youth: (A) met criteria for a primary diagnosis for a DSM-IV anxiety disorder of SAD, SOP, SP, and GAD. All diagnoses were reviewed and confirmed at a staff conference directed by Dr. Silverman following the administration of the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions (ADIS-C/P; Silverman & Albano, 1996), (B) received a mean score of 4 or greater on the Clinician's Rating Scale of Severity (see Measures), (C) ceased all other psychosocial treatment upon review with the Center's clinic staff and the service provider, and (D) withdrew from certain psychopharmacological agents viewed as confounding the study, upon review with the Center's psychiatric consultant (withdrawal was done under medical supervision), (E) were between 6 and 16 years old, and (F) had parents or guardians who agreed to participate in the youth's treatment.

The study's exclusion criteria included the following, youth who (A) met as a primary diagnosis any Axis 1 DSM-IV disorder other than SAD, SOP, SP, and GAD; or (B) failed to withdraw from psychosocial treatment or psychopharmacological agents as per study protocol and as per medical supervision; or (C) youth and/or parents met diagnoses (e.g., primary, secondary, tertiary) for any one of the following -- Pervasive Developmental Disorders, Mental Retardation, Organic Mental Disorders, Schizophrenia

and Other Psychotic Disorders; or (D) youth and/or parents showed high likelihood and/or serious intent of hurting themselves or others.

Measures

Clinically Significant Improvement Measures. Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions (ADIS for DSM-IV: C/P; Silverman & Albano, 1996). The ADIS for DSM-IV: C/P was administered to the youth and mother to assess anxiety and related disorders. Interviewers assigned diagnoses that youth and mother agreed were most interfering. In cases of disagreement, the interviewer considered both informants' views to derive a final diagnosis. In cases of multiple diagnoses, the relative interference of each disorder was determined by obtaining interference ratings from each source and prioritizing each disorder from most to least interfering/disturbing. The disorder deemed most interfering/disturbing was viewed as primary and was targeted in treatment. In addition to a primary anxiety diagnosis serving as a study inclusion criterion, diagnostic status was an index of clinically significant improvement. The ADIS for DSM-IV: C/P has good to excellent reliability for specific diagnoses and symptom patterns as well as strong correspondence with youths' anxiety self ratings (Silverman, Saavedra, & Pina, 2001).

Child Behavior Checklist (CBCL; Achenbach, 1991) is a 118-item parent rating scale designed to assess behavioral and emotional problems in youth. Each item is rated using a 3-point scale (*not true, somewhat or sometimes true, or very true or often true*). Parents' ratings on the CBCL's Internalizing subscale (CBCL-I)

were used to evaluate youth treatment response, as in past research studies. Clinically significant improvement was defined as a minimum criterion *T* score of less than 70, adjusted according to age norms, as in previous research (e.g., Shortt et al., 2001; Silverman et al., 1999a, b).

Children's Global Assessment Scale (C-GAS; Bird et al., 1993). The C-GAS is a clinician rating scale designed to assess functional impairment in youth. Scores range from 1 to 100; the scale is divided into ten deciles that include behavioral descriptors of the severity of symptoms in terms of their impact on school, family, peer relationships, and personal distress. Scores less than 67 are considered to be in the clinical range. As in previous research, C-GAS ratings were derived during case conference meetings headed by Dr. Silverman. Past work has yielded an inter-rater reliability coefficient of .66 (ICC), with validity shown by "caseness" (Bird et al., 1993).

Primary Outcome Measure Completed by Youth

Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). The RCMAS is a 37-item youth self rating scale designed to assess anxiety symptoms. Twenty-eight items are summed to yield a Total Anxiety score. Each item is rated either *Yes* or *No* and scored 1 or 0. The RCMAS is the most widely used self-rating scale in the youth anxiety treatment research literature (see review by Silverman & Ollendick, 2005). Pela and Reynolds (1982) reported a 3-week test-retest reliability of .98 for the Total Anxiety scale. Significant correlations have been found between the Total Anxiety scale, trait anxiety, and fear (*r*s = .63 to .88) (Ollendick, 1983). The alpha coefficient in the present sample was .84.

Primary Outcome Measure Completed by Parents

Revised Children's Manifest Anxiety Scale (Parent Version; RCMAS/P). The wording of RCMAS items was changed from, "I..." to "My child…" as done in past research (e.g., Kendall, 1994; Silverman et al., 1999). Each item was rated either Yes or No and scored 1 or 0. Twenty-eight items are summed to yield a Total Anxiety score. The alpha coefficient in the present sample was .78.

Parent Mediator Variables

All variables indicated below were assessed using both youth and parent versions of questionnaires.

Conflict Behavior Scale. The Conflict Behavior Questionnaire (CBQ; Prinz, Foster, Kent, & O'Leary, 1979) consists of 44 items that assesses: (1) the youth's positive/negative appraisal of the parent's behavior toward him/her (CBQ1) and (2) the youth's appraisal of conflict in the parent-youth dyadic relationship (CBQ). Scores for the youth's positive/negative appraisal of the parent's behavior are derived from 28 items and range from 0 to 20. Scores for the youth's appraisal of conflict are derived from 16 items and range from 0 to 10. Reverse scoring is why the range is less than the total number of items. Robin and Foster (1989) reported a 6- to 8-week retest reliability of .57 and .84 for these scales. The CBQ subscale was analyzed in the present study as this was the variable (i.e., reducing conflict in the parent-youth relationship) that was targeted in the PCBT condition. The alpha coefficients for the youth and parent versions of the CBQ in the current sample was .75.

Parenting Behavior Inventory. (Child Report/Parent Report; CRPBI & PRPBI; Schluderman & Schluderman, 1970). The CRPBI/PRPBI is a 30-item, widely used

questionnaire designed to assess respondents' perceptions of the parent's behaviors toward the youth (i.e., parenting behaviors), from the perspective of the youth and parent, respectively. The inventory has been found to have three subscales: Psychological Control, Acceptance, and Firm Control. The Psychological Control (CRPBI-PC/PRPBI-PC) subscale score was analyzed in the present study because as noted in Chapter II, there is a significant body of literature on the link between parental control and youth anxiety. The youth completed the forms on their mother. The internal consistency of the subscales has been found to range from .65 to .74 (Schwartz, Barton-Henry, & Pruzinsky, 1985). The PRPBI and CRPBI have been used in samples of children and adolescents referred to youth anxiety clinics and have been found to have satisfactory psychometrics (Siqueland et al., 1996). The alpha coefficients for the CRPBI and PRPBI in the current study were .79 and .72, respectively.

Peer Mediator Variables

All variables indicated below were assessed using both youth and parent versions of questionnaires.

Friendship Questionnaire. The Friendship Questionnaire (FQ; Bierman & McCauley, 1987) was used to evaluate youth's peer-youth relationships. The FQ contains 40 items that fall into 3 factors: Positive Interactions, Negative Interactions, and Extensiveness of Peer Network. Although the questionnaire includes eight open-ended questions about youth's friends, enemies, and peer interactions, relevant to the present study are the 32 items to which respondents rate the frequency of both positive (FQ-P) and negative interactions (FQ-N) with peers. The FQ discriminates between youth with positive versus rejected/neglected social status and correlates significantly with parent

and teacher reports of behavior and social competence (Bierman & McCauley, 1987). The alpha coefficients for the youth and parent versions of the FQ-P and the FQ-N in the current sample were .85 and .89 (youth rated) and .79 and .88 (parent rated), respectively.

Social Skills Rating System. The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) provides a comprehensive assessment of the social skills behaviors of youth from several perspectives. The SSRS student/youth form (SSRS/C) consists of 34 questions; the parent form (SSRS/P) consists of 38 questions. Factor analysis of the SSRS reveals 5 subscales: Empathy (SSRS-E), Cooperation (SSRS-C), Assertion (SSRS-A), Responsibility (SSRS-R), and Self-control (SSRS-S). Coefficient alpha reliabilities for the student form reveal a reliability coefficient of .83 for the total scale and .87 for the parent form. Gresham and Elliot (1990) provide extensive data to support the SSRS's validity including content, social, criterion, and construct. The total score of the SSRS was analyzed in the current study. The alpha coefficients for the youth and parent versions of the SSRS Total in the current sample were .86 and .89, respectively.

Tables 2 and 3 present means and standard deviations for outcome and treatment mediator measures for youth and parent completed measures, respectively.

Procedures

Assessment interviews and questionnaires were administered after parents provided informed consent and youths provided informed assent. Assessment interviews and questionnaires were generally completed in one session by one diagnostician (a doctoral level student). All measures were completed at pretreatment and posttreatment. Families who met the study's inclusion criteria were invited back to the clinic and informed consent/assent was obtained for their participation in the study.

Study Design

The design for this dissertation is a 2 (Intervention; PCBT versus GCBT) by 2 (Time; Pre versus Post) between-within design where the Intervention is the between factor and Time is the within factor. Because the study focuses on evaluating therapy specificity and mediational effects of parents and peer contextual variables, participants were randomly assigned to one of two intervention conditions. Participants in PCBT and GCBT were administered the measures at pretreatment and at posttest. This analysis was performed on each of the outcome variables. As a preliminary analysis, this approach was also used to determine if there were differential effects of treatment on the parent and peer contextual variables, from a limited information approach (structural equation modeling was used to analyze treatment specificity and mediation effects—see section in Results chapter). If the treatments have differential effects on the mediators, then a Group by Time of Assessment interaction should result. This would be expected in the case of the mediators, if there are indeed treatment specificity effects.

Treatment Conditions

As in previous research (Flannery-Schroeder & Kendall, 2000; Silverman et al., 1999b) participants were randomly assigned to PCBT or GCBT in blocks of seven. The specific condition (PCBT or GCBT) used to start the random assignment process was determined by the toss of a coin. Assignment to treatment in blocks of seven was used to avoid delay in the formation of groups. Treatment manuals for PCBT and GCBT were developed to standardize the content of each treatment session. Nevertheless, therapists were advised to consider the developmental needs of the youth and proceed accordingly with the treatment protocol. Given the high proportion of Hispanic families in the sample

(75&), 8% of the treatments were delivered in a bilingual format (English and Spanish) by the request of the parent participating in PCBT. There were no statistically significant differences on any of the primary outcome variables as a result of treatment language in PCBT. All group treatments were delivered in English.

In PCBT, the youth and parents met with the therapist for a total of 60 minutes. In GCBT, the youth met in the group with the therapist for a total of 60 minutes. The parents of the youth who have been assigned to GCBT also had three brief group meetings (about 30 minutes) with each group therapist (at the start of the treatment program, the middle, and the end) to be kept abreast about the program and the youth's tasks and activities (similar to Barrett, 1998 and Flannery-Schroeder & Kendall, 2001). Parents were not actively incorporated or involved in the youth's treatment in GCBT, thereby ensuring GCBT's distinctiveness from PCBT in terms of their targeting distinct contextual variables. The total number of sessions in both PCBT and GCBT was 12 to 14 sessions.

An outline of the basic core program as presented to participants is summarized below.

PCBT. **Session 1.** Introduction and discussion of presenting problems. Presentation of treatment rationale and goals, the importance of exposure and behavioral and cognitive strategies. Emphasis placed on working with anxious youth and their families, particularly parents. Present rationale for targeting parenting behaviors and parent-youth relationships. Explain out-of-session activities (Show That I Can; STIC jobs). **Session 2.** Review treatment rationale and goals. Explain "shaping" and help family construct anxiety hierarchy for the youth. Assign STIC task of generating list of

rewards. **Session 3.** Explain importance of parental support and reinforcement. Present behavioral principles to families, such as contingency management and weekly parent-youth contracting, to be used to help youth face his/her anxieties. Finalize hierarchy and rewards that parents will provide to youth for successful exposure attempts. Discuss parent-youth relationships in regard to youth anxiety and elicit problem areas for families. Raise for discussion issues regarding parental control and acceptance of ones' youth. Devise first contract for families and assign first STIC task--approach in low anxiety situation. **Session 4.** Review STIC task. Conduct in-session exposure. Use family to provide feedback, modeling, and reinforcement. Continue discussions regarding parental control and acceptance. Ask family to select first problem area to be targeted in youth anxiety management. Begin training in problem solving. For STIC task: Arrange 2X @ week when family will practice targeted problem area. Devise contract for exposure. **Session 5.** Review STIC task. Conduct in-session exposure. Begin training in communication skills. Ask family to select problem area to be targeted. Begin training using role-playing, behavioral rehearsal, feedback, etc. For STIC task: Arrange 2X @ week when family will practice new skill. Devise contract for exposure. **Session 6.** Review STIC task. Conduct in-session exposure. Continue practice in problem-solving and communication skills training, using role-playing, etc. Ask family to select problem area to be targeted. For STIC task: Arrange 2X @ week when family will practice targeted problem area. Also devise contract for exposure. **Session 7**. Review STIC task. Introduce cognitive component. Identify faulty cognitions, generate incompatible self-statements, explore alternatives, etc. Explain fading of rewards (to begin next session). For STIC task: Arrange 2X @ week when family will practice a parent-youth relational

area. Devise final contract. Practice cognitive strategies during exposure. **Session 8.** Review STIC task. Practice using communication and problem-solving skills. Introduce concept of self-evaluation and self-reward (now to replace parental rewards). Present 4-step coping plan ("STOP"). For STIC task: Practice using STOP during exposure. Continue having family practice 2X @ week a targeted area. **Session 9**. Review STIC task. Conduct in-session exposure. Address difficulties in implementation of various strategies. For STIC task: Practice using STOP during exposure. Have family practice 2X @ week a targeted area. **Session 10**. Review STIC task. Conduct in-session exposure. Continue practice skills and STOP. STIC task: Practice STOP and practice 3X @ week a targeted area. **Session 11.** Review and present relapse prevention. For STIC task: Practice STOP. **Session 12-14**. Review progress, relapse prevention and termination.

GCBT. **Session 1.** Introduction and discussion of presenting problems. Presentation of treatment rationale and goals, the importance of exposure and behavioral and cognitive strategies. Emphasis placed on working with anxious youth and their peers in a group. Present rationale for targeting youth social skills behaviors and peer-youth relationships. Explain out-of-session activities (Show That I Can; STIC jobs). **Session 2.** Review treatment rationale and goals. Explain "shaping" and construct anxiety hierarchy. Have youth pair off and help each other devise a hierarchy so that each member of group has a hierarchy. Assign STIC task of generating list of rewards. **Session 3.** Explain importance of peer support and reinforcement. Present behavioral principles to youth, and explain how peers in-group will be using these principles, such as contingency management and weekly peer contracting, to help each other face their anxieties. Finalize hierarchy and rewards. Discuss peer-youth relationships in regard to youth anxiety and

elicit problem areas for each youth in-group. Focus particularly on the notion of helping others, receiving help, etc. Devise first contract between group members (by having peers pair off) and assign first STIC task--approach in low anxiety situation. **Session 4.** Review STIC task. Conduct in-session exposure. Use peer group to provide feedback, modeling, and reinforcement. Ask each member of group to select first problem area to be targeted in youth social skills behaviors training. Train in social skills behaviors, including discussion of eye contact, ways to initiate and sustain conversations, etc. For STIC task: Arrange 2X @ week when each group member will practice targeted problem area. Devise contract for exposure. **Session 5.** Review STIC task. Conduct in-session exposure. Continue training in youth social skills behaviors and peer relationship skills. Ask each group member to select problem area to be targeted. Begin training using role-playing, behavioral rehearsal, feedback, etc. For STIC task: Arrange 2X @ week when each group member will practice new skill. Devise contract for exposure. **Session 6.** Review STIC task. Conduct in-session exposure. Continue practice in youth social skills behaviors and peer relationship skills building, practice in giving and receiving compliments using role-playing, etc. Ask each group member to select problem area to be targeted. For STIC task: Arrange 2X @ week when each group member will practice targeted problem area. Also devise contract for exposure. **Session 7**. Review STIC task. Introduce cognitive component. Identify faulty cognitions, generate incompatible self-statements, explore alternatives, etc. Explain fading of rewards (to begin next session). For STIC task: Arrange 2X @ week when each group member will practice a youth-peer relational area. Devise final contract. Practice cognitive strategies during exposure. **Session 8.** Review STIC task. Continue practice using youth social skills behaviors and relationships skills.

Introduce concept of self-evaluation and self-reward (now to replace peer rewards). Present 4-step coping plan ("STOP"). For STIC task: Practice using STOP during exposure. Continue having group practice 2X @ week a targeted area. **Session 9**. Review STIC task. Conduct in-session exposure. Address difficulties in implementation of various strategies. For STIC task: Practice using STOP during exposure. Have group members practice 2X @ week a targeted area. **Session 10**. Review STIC task. Conduct in-session exposure. Continue practice in skills and STOP. STIC task: Practice STOP and practice 3X @ week a targeted area. **Session 11.** Review and present relapse prevention. For STIC task: Practice STOP. **Session 12-14**. Review progress, relapse prevention, termination.

Therapists

Because the two conditions require similar therapeutic skill levels, therapists were crossed between conditions as recommended by Kazdin (1994). Crossing therapists with condition allows for an analysis of the portion of patient change attributed to the therapists (therapist variance) that can be separated from the portion associated with treatment conditions (treatment variance) (Kazdin, 1994). All therapists received training in the proper administration of the interventions by Dr. Silverman. The training of therapists included the following: Therapists first familiarized themselves with the treatment protocols. Particular emphasis was placed on highlighting the overlap between the conditions (e.g., youth exposure) but also in ensuring that therapists understood the important distinctions between the two conditions. Dr. Silverman provided both didactic and clinical training via extensive role-playing of the interventions' procedures.

During the course of the dissertation study, Dr. Silverman conducted weekly supervision meetings with therapists to prepare for upcoming sessions and process sessions just completed. This included the review of the therapists' treatment notes, listening to a random selection of therapists' session tapes and providing ongoing feedback via instructions and role-plays. Eight doctoral level graduate students sin psychology delivered the treatments to the majority of the youth in this dissertation study. There were no statistically significant differences between any of the therapists on any of the primary outcome variables.

CHAPTER IV.

RESULTS

Preliminary Analyses

Outlier analyses were undertaken prior to all major analyses. The analyses were both non-model based and model based. For the former, multivariate outliers were identified by examining leverage indices for each individual and defining an outlier as a leverage score four times greater than the mean leverage. There were no outliers found in the data using this approach. An additional set of outlier analyses were pursued using model-based outlier analysis. This involved randomly selecting an indicator for each variable and then regressing the indicator for each endogenous variable onto an indicator for variables that the endogenous variable is assumed to be a linear function of. This analysis uses ordinary least squares (OLS) regression in a limited information estimation framework. Standardized dfbetas were examined for each individual and each predictor as well as the intercept. An outlier is defined as anyone with an absolute standardized dfbeta larger than 1.0. There were no outliers found in the data using this approach. Univariate indices of skewness and kurtosis were examined to determine if the absolute value of any of these indices was greater than 2.0. Non-normality was evident in several of the variables. To account for the non-normality present in the data, structural equation modeling (SEM) analyses were pursued in MPLUS by using an estimator (MLR) robust to violations of normality based on the Huber-White algorithm.

The first step in the analysis of missing data was to determine if there was systematic bias in the patterning of missing data. For a given measure, a dummy variable was constructed to indicate the presence or absence of missing data on that measure.

Associations between these dummy variables and demographic as well as other study variables were examined. No significant associations were observed. Given this and coupled with minimal univariate missing data (no more than 10 percent on a given variable), missing data were accommodated in SEM by employing full information maximum likelihood (FIML) missing data methodology (Wothke, 2000).

The data were analyzed using analysis of variance as well as SEM in MPLUS Version 6 to test for treatment specificity and mediation effects. The data were first analyzed using a limited information framework where treatment specificity and mediation was tested individually for each of the hypothesized mediators (Parent Variables: CBQ, CRPBI-PC/PRPBI-PC, Peer Variables: FQ-P, FQ-N, SSRS-Total Score). A full information framework was then employed where all statistically significant paths were entered in one model and analyzed using SEM.

Clustering Effects. Given that the GCBT condition was comprised of 19 separate treatment groups of youths, the model was adjusted for potential clustering effects (19 clusters). Youth participants in the PCBT condition were grouped as one cluster and were thus considered a separate cluster for a total of 20 clusters. Given that traditional OLS regression approaches assume independence of observations, intra-class correlation (ICC) coefficients were calculated to examine the degree of non-independence of observations as a result of the clustering of participants in GCBT. As the ICC increases, the amount of independent information from the data decreases, inflating the Type I error rate of an analysis that ignores this correlation (Blair, Higgins, Topping, & Mortimer, 1983). If clustering is not of concern, then ICC's should be zero or near zero. Calculation of ICC's revealed coefficients greater than .05, which was judged to be large enough to pursue

adjustment of clustering effects using the algorithms in MPLUS; see Muthén & Muthén, 2007).

Treatment Outcome

Treatment outcome or change in reduction of anxiety was evaluated using two approaches: clinically significant change and analyses of variance in a SEM framework. The correlation between the parents' ratings of youth anxiety and the youths' self ratings of anxiety was .14 at the pretest and .29 at the immediate posttest, with the latter being statistically significant ($p < .001$). These generally modest correlations are typical of past research (Achenbach, McConaughy, & Howell, 1987). As a result, the parent and youth ratings on the respective versions of the RCMAS were treated as separate primary outcome measures.

Clinical Significant Change. The equivalent of a logistic regression was conducted using SEM on MPLUS to evaluate clinically significant change. Clustering attributable to GCBT was taken into account in these analyses. In terms of diagnostic recovery rates, 73% percent of youth across both conditions did not have their primary diagnosis present at posttreatment derived using the ADIS: C/P. For participants in PCBT, 77.2% of youth did not have their primary diagnosis present at posttreatment. For participants in GCBT, 67.9% of youth did not have their primary diagnosis present at posttreatment. There were no statistically significant differences on diagnostic recovery rates between treatment conditions ($z = -1.74$, $p > .05$).

The equivalent of a logistic regression was conducted using SEM on MPLUS to evaluate clinically significant change using the CBCL-I. Clustering attributable to GCBT was taken into account in these analyses. In terms of CBCL-I subscale scores, 90.74% of

youth were no longer in the clinical range at posttreatment. For participants in PCBT, 91.1% of youth were no longer in the clinical range on the CBCL-I subscale at posttreatment. For participants in GCBT, 90.3% of youth were no longer in the clinical range on the CBCL-I subscale at posttreatment. There were no statistically significant differences on CBCL-I subscale scores between treatment conditions at posttreatment ($z = -0.25$, $p > .05$).

The equivalent of a logistic regression was conducted using SEM on MPLUS to evaluate clinically significant change using the C-GAS. Clustering attributable to GCBT was taken into account in these analyses. In terms of C-GAS scores, 70.91% were no longer in the clinical range at posttreatment across both treatment conditions. For participants in PCBT, 74.2% of youth were no longer in the clinical range on the C-GAS at posttreatment. For participants in GCBT, 67.1% of youth were no longer in the clinical range on the C-GAS at posttreatment. There were no statistically significant differences on C-GAS scores between treatment conditions at posttreatment ($z = -1.96$, $p = .05$).

*Youth Ratings***.** The SEM equivalent of a 2X2 between-within subjects analysis of variance was conducted on the RCMAS, with the type of treatment intervention (PBCT and GCBT) representing a between-subjects factor and time (pre and post) representing a within-subjects factor. The main effects for time on the child RCMAS was statistically significant ($z = 10.88$, $p < .05$). The main effects for treatment intervention and the interaction effects were not statistically significant. The z value for the single degree of freedom contrasts for the main effect of treatment intervention was .56 ($p > .05$), and for the interaction it was 1.32 ($p > .05$).

Table 4 presents relevant single degree of freedom contrasts and their associated statistics for youth completed measure. The contrasts used non-pooled error terms for the contrasts involving repeated measures but pooled terms for the contrasts across the between-subjects factor. The mean difference for the main effect of time collapsing across treatment condition was 5.82 with post showing a decrease in youth self-ratings of anxiety, on average, than pre. To determine if this time difference occurred at each treatment intervention, simple main effects (SME) contrasts were performed. (SME contrasts were performed on MPLUS for GCBT, only, to account for clustering). The time difference was statistically significant for both treatment interventions, with post scores showing a decrease in youth self-ratings of anxiety. The time difference for PCBT was 6.42 and for GCBT it was 5.37. The significant time difference effects were maintained when the Holm modified Bonferroni method was applied to control the experiment-wise error rate at 0.05.

Parent Ratings. The SEM equivalent of a 2X2 between-within subjects analysis of variance was conducted on the parent rated RCMAS, with the type of treatment intervention (PBCT and GCBT) representing a between-subjects factor and time (pre and post) representing a within-subjects factor. The main effects for time on the parent rated RCMAS was statistically significant ($z = 5.94$, $p < .05$). The main effects for treatment intervention and the interaction effects were not statistically significant. The z value for the single degree of freedom contrast for the main effect of treatment intervention was -.62 ($p > .05$), and for the interaction it was .06 ($p > .05$).

Table 5 presents relevant single degree of freedom contrasts and their associated statistics for the parent completed treatment outcome measure. The contrasts used non-

pooled error terms for the contrasts involving repeated measures but pooled terms for the contrasts across the between-subjects factor. The mean difference for the main effect of time collapsing across treatment condition was 4.60, with post showing a decrease in youth self-ratings of anxiety, on average, than pre. To determine if this time difference occurred at each treatment intervention, SME contrasts were performed. (SME contrasts were performed on MPLUS for GCBT, only, to account for clustering). The time difference was statistically significant for PCBT, with post scores showing a decrease in youth self-ratings of anxiety. The time difference for PCBT was 4.63. The time difference for GCBT was also statistically significant, with post scores showing a decrease in youth self-ratings of anxiety. The time difference for GCBT was 4.54. The significant time difference effects were maintained when the Holm modified Bonferroni method was applied to control the experiment-wise error rate at 0.05.

Structural Equation Modeling

To explore specificity effects and test the mediational models, the data were also analyzed using SEM. Figures 2 and 3 represent the youth and parent models, respectively, that were tested. A two-valued dummy variable (scored 1 or 0, respectively) for the two treatment conditions (PCBT versus GCBT) was defined and was assumed to impact the outcome in question (youth anxiety) at the posttreatment (e.g., see Figure 2, path *c*). Paths *a* and *d* reflect impact of the treatment on the mediators (e.g., CRPBI-PC and FQ-P in Figure 2) and reflect differential effects of the two interventions on the respective mediators. A positive coefficient indicates that the posttest score for PCBT is higher than that of GCBT and a negative coefficient indicates the opposite. Paths *b* and *e*

(also in Figure 2) reflect the extent to which changes in the respective mediators at posttreatment are associated with changes in the outcome at posttreatment.

Interaction effects in the SEM analyses were modeled using product terms, as discussed in Jaccard, Turrisi and Wan (1990) and Jaccard and Wan (1996). These product terms (e.g., path *f* in Figure 2 and path *d* in Figure 3) reflect the differences in slopes between the two treatment conditions. In other words, these paths reflect differential effects of the treatment conditions on the mediators on the outcome. Given the addition of these product terms in the respective youth and parent models, all continuous variables were mean centered for ease of interpretation of path coefficients (see Jaccard an Turrisi, 2003)[1].

Covariates and Fit Indices. The scores of the pretreatment measures were used as covariates for the analysis of group differences (GCBT versus PCBT) in posttreatment means (Rausch, Maxwell, & Kelly, 2003), as well as for the analyses of treatment specificity and mediation. A total of four covariates were included in the analysis of both youth and parent models: (1) the outcome and mediator variables as measured at pretreatment (2) youth sex, (3) youth age, and (4) youth ethnicity. Paths were included from each of these variables to the outcome and mediators. A correlation was also estimated between the product term and the dummy coded treatment conditions in both youth and parent. Figures 2, 3, 4, and 5 exclude the covariates of youth sex, age, ethnicity, and the pretreatment scores of the outcome and mediator variables as well as the correlations among exogenous variables. This was done to avoid clutter but all covariates were included in all model tests.

Following recommendations of Bollen and Long (1993), a variety of global fit indices were used, including indices of absolute fit, indices of relative fit and indices of fit with a penalty function for lack of parsimony. These include the traditional overall chi square test of model fit (which should be statistically non-significant), the Root Mean Square Error of Approximation (RMSEA; which should be less than .08 to declare satisfactory fit), the Comparative Fit Index (CFI; which should be greater than 0.95); and the standardized root mean square residual (SRMR; which should be less than 0.05).

Treatment Specificity and Mediation Effects

Youth Ratings. Figure 2 represents the model that was tested with youth completed measures. This model yielded a good fit to the data. The overall chi square test of model fit was not statistically significant ($\chi2$ (3) = 4.06, p > .05). The CFI was 0.99. The RMSEA was 0.04. The p value for the test of close fit was 0.44. The SRMR was 0.02. More focused tests of fit revealed no theoretically meaningful or sizeable modification indices. The residuals of the mediator variables were allowed to be correlated to account for the fact that the correlation among these variables was not due solely to the common cause of the treatment.

With respect to treatment mediation effects using youth ratings, the joint significance test was used to examine these effects as recommended by MacKinnon et al. (2002) and as such, the paths of interest in Figure 2 are *a, b, d, e,* and *f*. Path *a* represents the differential effect of treatment on the CRPBI-PC; path *b* represents the effect of the CRPBI-PC on the RCMAS; path *d* represents the differential effect of treatment on the FQ-P; path *e* represents the effect of the FQ-P on the RMCAS. Finally, path *f* represents the differential effect of treatment of the CRPBI-PC on the RCMAS. In accordance with

the recommendations of MacKinnon et al., paths *a* and *b* need to be statistically significant to conclude that CRPBI-PC mediates, to some extent, treatment response. Paths *d* and *e* need to be statistically significant to conclude that the FQ-P mediates, to some extent, treatment response. Path *f* was not statistically significant. Thus, this path was dropped from the model.

The model was re-analyzed without the product term and this model (see Figure 3) also yielded good fit to the data. The overall chi square test of model fit was not statistically significant ($\chi 2$ (2) = 3.26, p > .05). The CFI was 0.99. The RMSEA was 0.06. The p value for the test of close fit was 0.34. The SRMR was 0.02. More focused tests of fit revealed no theoretically meaningful or sizeable modification indices. The residuals of the mediator variables were allowed to be correlated to account for the fact that the correlation among these variables was not due solely to the common cause of the treatment. The standardized residuals indicate the proportion of unexplained variance in the endogenous variables. The variables in the model were able to account for 36% of the variance in the FQ-P scores, 40% of the variance in the CRPBI-PC scores, and 28% of the variance in RCMAS scores.

In PCBT, treatment specificity effects were found for youth rated CRPBI-PC (path a = -1.22, p < .05, 95% CI = -1.99 to -0.45). Youth in PCBT rated their mothers as more psychological controlling than youth in GCBT. There were no treatment specificity effects found for GCBT using youth rated measures.

With respect to treatment mediation effects using youth ratings, as noted earlier, the joint significance test was used to examine these effects as recommended by MacKinnon et al. (2002) and as such, the paths of interest in Figure 3 are *a, b, d,* and *e*.

Only path *a* was statistically significant. As such, there is no evidence that the CRPBI-PC or the FQ-P mediate youth treatment response.

Parent Ratings. Figure 4 represents the model that was tested with parent completed measures. This model was just-identified and as such no fit indices are reported. With respect to treatment mediation effects using parent ratings, the joint significance test was used to examine these effects as recommended by MacKinnon et al. (2002) and as such, the paths of interest in Figure 4 are *a, b,* and *d.* Path *a* represents the differential effect of treatment on the FQ-P; path *b* represents the effect of the FQ-P on the RCMAS. In accordance with the recommendations of MacKinnon et al., paths *a* and *b* need to be statistically significant to conclude that FQ-P mediates, to some extent, treatment response. Finally, path *d* represents the differential effect of treatment of the FQ-P on the RCMAS. Path *d* was not statistically significant. Thus, this path was dropped from the model.

The model was re-analyzed without the product term. This model (see Figure 5) was just-identified and thus no fit indices are reported. The standardized residuals indicate the proportion of unexplained variance in the endogenous variables. The variables in the model were able to account for 54% of the variance in the FQ-P score, and 34% of the variance in RCMAS scores.

In GCBT, treatment specificity effects were found for parent rated FQ-P (path a = -3.21, $p < .05$, 95% CI = -4.82 to -1.61). Parents of youth in GCBT reported that their children had more positive interactions with their peers relative to youth in PCBT.

With respect to treatment mediation effects using parent ratings, as noted earlier, the joint significance test was used to examine these effects as recommended by

MacKinnon et al. (2002) and as such, the paths of interest in Figure 5 are *a* and *b*. Treatment mediation was found for one of the hypothesized mediators of GCBT. Specifically, FQ-P significantly mediated GCBT response [path *a* and path *b* (path $b = -0.10$, $p < .05$, 95% CI = -0.15 to -0.05) were both statistically significant]. That is, GCBT resulted in children having significant improvements in positive interactions with peers from pre to post treatment, which in turn mediated significant reductions in youth outcome, as reported by parents. Given these findings, the total indirect effect of treatment on anxiety was .32 ($p < .05$); the total effects of treatment on anxiety were not statistically significant.[3]

CHAPTER V.

DISCUSSION

The aims of the present dissertation study were to evaluate treatment specificity and mediation effects of parent and peer variables in two cognitive behavioral treatments, PCBT and GCBT. Specifically, the study evaluated if there were treatment specific effects of parent variables (i.e, parenting behaviors and the parent-youth relationship) in parent-involvement CBT, but not in GCBT. The study also evaluated if there were treatment specific effects of peer variables (i.e., youth social skills behaviors and the peer-youth relationship) in GCBT, but not in PCBT. A second aim of the study was to examine whether parenting behaviors, the parent-youth-relationship, youth social skills behaviors, and/or the peer-youth relationship mediated positive youth treatment response (i.e., anxiety reduction). Given that there is already a significant body of literature demonstrating the efficacy of CBT when parents and peers are involved, the present study was, in part, a response to calls made in the treatment research literature regarding the need to not only emphasize outcome issues, but also treatment specificity and mediation issues (e.g., Kazdin, 2001; Roth et al., 1994; Silverman & Kurtines, 1997).

Summary of Dissertation Findings

Treatment Outcome. Although the evaluation of treatment outcome was not the main objective of this dissertation study, a discussion of the outcome findings is warranted. Overall, the findings underscore the efficacy of CBT for reducing anxiety disorders in youth when parents and peers are involved in treatment. Results indicate that PCBT and GBCT were both efficacious in reducing anxiety and its disorders in youth. A pattern of anxiety reduction was observed across all the indices of change. Clinically

significant change was evidenced by diagnostic recovery and regression to nonclinical levels of functional status; and anxiety symptom reduction was evidenced by significantly lower scores on the respective youth and parent versions of the RCMAS. These findings are consistent with past studies demonstrating the efficacy of youth cognitive behavior treatment for reducing anxiety and its disorders in youth when incorporating parents (e.g., Barrett et al., 1996; Bögels & Siqueland, 2006; Silverman et al., 2009) and peers (e.g., Beidel et al., 2000; Flannery-Schroeder & Kendall, 2000; Silverman et al., 1999b).

Treatment Specificity. Some treatment specificity effects were found for participants in PCBT. Youth participants in PCBT reported that their mothers were significantly less psychologically controlling following treatment than youth participants in GCBT. This finding was not observed with parent reports.

Some treatment specificity effects were also found for participants in GCBT. Parents of youth in GCBT reported that the youth showed significantly more improvements in positive interactions with peers following treatment compared to youth participants in PCBT. This finding was not observed with youth reports.

Treatment Mediation. Treatment mediation was found for one of the hypothesized peer variables (i.e., the peer-youth relationship). Findings showed that GCBT resulted in youth having significant improvements in positive interactions with peers (i.e., improved friendships) from pre to post treatment, which in turn mediated significant reductions in youth anxiety. Treatment mediation was not found for either of the parent variables (i.e., parenting behaviors, r the parent-youth relationship) or for youth social skills behaviors.

Contribution of the Present Study and Implications

The present study contributes on theoretical, empirical, and clinical levels. The main contributions on each of these levels are summarized below including potential implications.

Theoretical Implications. The study's findings are consistent with past studies that show that CBT is efficacious when delivered using a parent-involvement CBT approach as well as a youth group CBT approach. These findings therefore provide yet further support for the evidence base underlying the use of cognitive and behavioral treatment procedures to reduce anxiety and its disorders in youth. It is clear from the present study and the cumulative literature that having children gradually face anxiety provoking situations or events coupled with the use of cognitive strategies such as decatastrophizing and reality checking can significantly reduce youth anxiety (Silverman et al., 2008).

The study also extends past research by focusing on what it is theoretically that may be operating in each of these two treatment conditions (i.e., treatment mediation). Although parental psychological control improved significantly in both treatment conditions, greater improvement was observed for youth in PCBT, (as reported by youth). Even though parental psychological control was not targeted in GCBT, it is possible that a bidirectional relation between parental psychological control and youth anxiety was operating. That is, it is possible that as parents saw their children improve in terms of anxiety symptoms in GCBT, parents decreased their use of psychological control, even though they were not involved in treatment; and as parents decreased their use of psychological control, youth anxiety also improved. The finding that there were

significantly more reductions in parental psychological control in PCBT than GCBT, points to at least "partial specificity" of PCBT.

Although positive peer interactions improved in both treatment conditions, greater improvement was observed for youth in GCBT, as reported by parents. Even though peer interactions were not targeted in PCBT, it is possible that a bidirectional relation between peer interactions and youth anxiety was also operating. That is, a plausible explanation can be that anxiety reduction leads to improvement in other areas of a child's functioning, specifically friendships. For instance, as parents saw their children improve in terms of anxiety symptoms in GCBT, parents also noticed improvement in their child's peer-youth relationships. The finding that peer relationships were significantly more improved in GCBT than PCBT, points to at least "partial specificity" of GCBT.

Finding treatment mediation in this dissertation study is highly encouraging. It suggests that some of the treatment procedures that are currently included in GCBT are indeed producing effects on the hypothesized peer variables and just as importantly, these variables are mediating youth anxiety treatment response. It is interesting however that treatment mediation was not found with youth social skills. It is plausible that part of the reason for not finding youth social skills as mediators of treatment response could be related to the direction of change that these variables are exerting their effects. That is, as anxiety improves, youth social skills also improve. This possibility was not pursued because it would have been beyond the scope of the study.

Treatment mediation was not found with any of the hypothesized parent variables. It is plausible that part of the reason for not finding parent variables as mediators of treatment response is also related to the direction of change that these variables are

exerting their effects. Silverman et al. (2009) recently evaluated the directionality of change in a randomized clinical trial that involved parents. They found that the traditional view of parents playing a role in their children's anxiety did not necessarily hold. Interestingly, in their study, stronger support was found for youth to parent influence that parent to youth or the bidirectional influence. Given that this would have been beyond the scope of the current study, these relations were not pursued. Future studies should pursue these research questions.

These findings highlight the importance of evaluating issues of treatment specificity and mediation in that they inform theory construction in youth anxiety treatment. Evaluating treatment specificity and mediation allows for verification of what is done in the treatment and if such variables are indeed improving as a result of the targeting of those variables. More importantly, by elucidating the mechanisms of change, researchers (and clinicians) can focus on the variables that will lead to significant symptom reduction.

The study's theoretical contribution was possible by some of the innovative aspects of the study design and measurement strategies. The study employed an efficient design focusing on the interventions of interest. The study is one of a only a small number of trials that collected data on the hypothesized mediators in both conditions and analyzed the mediators in both treatment conditions to more effectively evaluate the issues of treatment specificity.

Although encouraging findings given the lack of past research in this area of youth anxiety treatment research, these findings should be interpreted with caution given

that treatment specificity was not found across both sources of informants (i.e., youth and parents) or with all hypothesized parent and peer variables.

Empirical Implications. The present study was able to provide empirical evidence that CBT is efficacious for reducing anxiety and its disorders in youth. As noted, these findings add to the current evidence base on psychosocial treatments for youth. That the involvement of parents and peers in youth anxiety CBT also improved youth anxiety across both sources of informants is important because youth anxiety can be reduced in any treatment format (i.e., individually, with parental involvement, in groups).

The present study is, to some extent, consistent with Silverman et al. (2009) in that CBT had an effect on parent variables. In Silverman et al.,'s study however, treatment had an effect on the parent-child relationship, but the specific parenting behavior, parental psychological control, was not assessed. This study is also, to some extent, consistent with Alfano et al. (2009) in that CBT had an effect on peer variables. In Alfano et al.,'s study however, treatment had an effect on youth reported social isolation, a peer variable that was not directly targeted in this dissertation study, but is nevertheless related to peer-youth relationships.

It is important to note that this is the first randomized clinical trial that accounted for clustering effects in the group treatment condition. None of the randomized trials that incorporated peers in a group CBT made note of the potential independence of observations found by the group condition. The failure to account for clustering is a study limitation of past research given the necessary statistical assumptions that underlie ANOVA approaches (the main statistical approach used in these past trials).

Clinical Implications. Clinically, the study's findings provide further reassurance that clinicians have flexibility when it comes to whether to implement CBT using parent involvement conditions or peer involvement conditions. Given the scarcity of treatment specificity and mediation research in the child and adolescent treatment literature (with Kolko et al., 2000 being one of the sole) finding at least partial support for treatment specific represents an important clinical finding.

In addition, the findings provide yet further reassurance to clinicians that when they aim to target parental psychological control, for example, parental psychological control actually changes relative to when parental psychological control does not get targeted in an alternative treatment. Targeting parental psychological control and peer-youth relationships is important in treatment considering there is a substantial body of researching showing that youth with internalizing problems have parents who are overcontrolling and also show poor friendship patterns

Finally, with regard to the mediation findings, this study suggests the likely utility of targeting in treatment not only symptom reduction but also hypothesized variables that are viewed to be critical for youth anxiety reduction. At least in a peer involvement CBT, targeting the peer-youth relationship to produce such changes appears to be an important component of the treatment.

Limitations and Future Research Directions

Although the current dissertation study's findings are promising, it is important to note some limitations of the study. First, the current study is limited in that the mediators were only measured at two time points (pretreatment and posttreatment). Given that changes in the mediators need to precede changes in the outcome, the study did not allow

for an evaluation of these temporal issues. One plausible explanation for not finding mediation with some of the other hypothesized variables (i.e., the parent-youth relationship or youth social skills behaviors) is that these effects could be operating at later point in time. To better evaluate mediators of treatment response, a better design would have involved more intensive and frequent measurement, including the measurement of youth outcome and parent and peer variables on a session by session basis (Kraemer, Wilson, Fairburn, & Agras, 2002). Future research should involve more intense and frequent measurement.

Second, a limitation of the design of the treatment conditions is that perhaps the treatments were saturated with information with respect to the parent and peer variables. Perhaps if treatments focus on one aspect (e.g, parenting behaviors and not the parent-youth relationship, or the youth-peer relationhip and not youth social skills behaviors) of these variables, this information could be delivered more effectively given that treatment sessions were limited in duration.

Third, intent-to-treat analyses were not pursued because these data were not collected from particpants who dropped out of treatment. Intent-to-treat analyses are important to conduct to draw better conclusions about differences between treatment completers and non-completers on the mediator and outcome measures.

In sum, this study, together with a few others (Alfano et al., 2009 & Silverman et al, 2009) adds to the current body of literature on parent and peer variables as mediators of youth anxiety treatment. The current study sets the path for future avenues of research. Instead of focusing efforts on efficacy studies involving CBT, it is now the time to begin to evaluate evidence-based explanations of treatment as well as exploring the now more

contemporaneous view of directionality of change (i.e., the bidirectional pathways of the parent-youth and peer-youth relationships).

Table 1

Demographic and Diagnostic Information by Treatment Condition

	PCBT (n = 100)				GCBT (n = 83)			
Variable	*n*	*%*	*M*	*SD*	*n*	*%*	*M*	*SD*
Age (years)			9.71	2.28			9.86	2.17
Gender (male)	52	52			46	54		
Target diagnosis								
Separation anxiety	40	40			34	41		
Social phobia	23	23			18	21.6		
Specific phobia	17	17			13	15.7		
Generalized anxiety	14	14			12	14.5		
OCD	3	3			2	2.4		
PD w/ Agoraphobia	1	1			2	2.4		
PD w/out Agoraphobia	1	1			1	1.2		
Selective Mutism	1	1			1	1.2		
Ethnic background								
Euro-American	25	25			11	13.3		
Hispanic/Latino	69	69			68	81.9		
African-American	3	3			2	2.4		
Other/not reported	3	3			2	2.4		
Annual income								
$0-$20,999	10	10.9			15	19.7		
$21,000-$40,999	19	20.7			18	23.7		
$41,000-$60,999	16	17.4			12	15.8		
$61,000-$80,999	12	13			9	11.8		
$81,000-$99,999	11	12			8	10.5		
$100,000-$149,999	13	14.1			9	11.8		
>$150,000	11	12			5	6.6		
Not reported	1	1.1			7	8.7		
Marital Status								
Married	73	86.9			61	79.2		
Divorced	8	9.5			7	9.1		
Single	1	1.2			0	0.0		
Separated	2	2.4			5	6.5		
Remarried	0	0.0			2	2.6		
Unmarried living w/ partner	0	0.0			2	2.6		
Widowed	0	0.0			0	0.0		
Not reported	1	1.1			3	3.8		

Note. OCD = Obsessive Compulsive Disorder. PD = Panic Disorder. w/ = with. PCBT = Parent-involvement cognitive behavior treatment. GCBT = Group cognitive behavior treatment.

Table 1 (Continued)

Demographic and Diagnostic Information in the Two Treatment Conditions for Treatment Completers

	PCBT (n = 100)				GCBT (n = 83)			
Variable	*n*	*%*	*M*	*SD*	*n*	*%*	*M*	*SD*
Mother's Education								
Grade school	0	0.0			0	0.0		
Some high school	3	3.2			1	1.3		
High school	7	7.4			9	11.4		
GED	3	3.2			1	1.3		
Some college	13	13.7			19	24.1		
College	20	21.1			15	19.0		
Bachelor's	27	28.4			13	16.5		
Master's	12	12.6			9	11.4		
Ph.D.	3	3.2			2	2.5		
Technical Degree	3	3.2			8	10.1		
Advanced Degree	3	3.2			1	1.3		
Other/Not Reported	1	1.1			1	1.3		
Father's Education								
Some grade school	1	1.1			1	1.3		
Grade school	2	2.2			1	1.3		
Some high school	3	3.2			5	6.3		
High school	6	6.5			7	8.9		
GED	2	2.2			3	3.8		
Some college	14	15.1			8	10.1		
College	19	20.4			16	20.3		
Bachelor's	21	22.6			15	19.0		
Master's	10	10.8			11	13.9		
Ph.D.	6	6.5			3	3.8		
Technical Degree	4	4.3			8	10.1		
Advanced Degree	4	4.3			1	1.3		
Other/Not Reported	1	1.1			0	0.0		

Note. Mother's Education = Highest education mother attained. Father's Education = Highest education father attained. PCBT = Parent-involvement cognitive behavior treatment. GCBT = Group cognitive behavior treatment.

Table 2

Mean (Standard Deviations) for Youth Completed Outcome and Mediator Measures

	PCBT (n = 100)		GCBT (n = 83)	
	Pretreatment	Posttreatment	Pretreatment	Posttreatment
Primary Outcome				
RCMAS	13.49 (6.64)	7.42 (5.85)	12.93 (6.63)	7.47 (6.96)
Parent Mediator Measures				
CBQ	2.92 (2.75)	2.59 (2.70)	2.87 (2.58)	2.16 (2.43)
CRPBI-PC	18.11 (4.54)	16.54 (4.36)	17.39 (4.38)	17.25 (4.98)
Peer Mediator Measures				
FQ-P	49.45 (15.50)	50.19 (13.60)	48.62 (15.50)	51.80 (14.58)
FQ-N	33.30 (11.38)	30.75 (13.71)	32.37 (13.38)	29.46 (13.73)
SSRS-Total Score	55.38 (10.35)	57.89 (13.03)	56.70 (11.85)	57.97 (11.97)

Note. RCMAS = Revised Children's Manifest Anxiety; CBQ = Conflict Behavior Questionnaire; CRPBI-PC = Child Report of the Parenting Behavior Inventory-Psychological Control; FQ-P = Friendship Questionnaire-Positive Interactions; FQ-N = Friendship Questionnaire-Negative Interactions; SSRS-Total Score = Social Skills Rating System.

Table 3

Mean (Standard Deviations) for Parent Completed Outcome and Mediator Measures

	PCBT (n = 100)		GCBT (n = 83)	
	Pretreatment	Posttreatment	Pretreatment	Posttreatment
Primary Outcome				
RCMAS/P	12.71 (5.57)	8.04 (5.69)	12.96 (5.75)	8.49 (5.85)
Parent Mediator Measures				
CBQ	2.75 (2.74)	1.80 (2.40)	2.94 (2.51)	1.63 (2.08)
PRPBI-PC	4.74 (3.34)	4.00 (3.07)	5.27 (3.70)	4.40 (3.70)
Peer Mediator Measures				
FQ-P	44.18 (12.33)	45.74 (11.97)	43.30 (13.45)	47.82 (12.63)
FQ-N	28.42 (9.30)	25.02 (6.38)	28.41 (9.99)	25.75 (7.43)
SSRS-Total Score	48.46 (10.38)	51.25 (10.50)	48.84 (11.39)	50.97 (10.50)

Note. RCMAS/P = Revised Children's Manifest Anxiety/Parent Version; CBQ = Conflict Behavior Questionnaire; CRPBI-PC = Child Report of the Parenting Behavior Inventory-Psychological Control; FQ-P = Friendship Questionnaire-Positive Interactions; FQ-N = Friendship Questionnaire-Negative Interactions; SSRS-Total Score = Social Skills Rating System.

Table 4

Single Degree of Freedom Contrasts: Treatment Outcome, Child Completed Measure

	Parameter	SE	t Value	p Value	95% CI
RCMAS					
ME: Time	10.88	3.418	3.18	<. 001	4.18 to 17.57
ME: Treatment	0.34	0.61	0.56	> .05	-0.85 to 1.53
SME: Pre-Post for PCBT	6.42	0.70	9.17	<.001	5.04 to 7.81
SME: Pre-Post for GCBT	18.56	5.40	3.44	<.001	7.99 to 29.16

Note. ME = Main effects. SME = Simple Main Effects. RCMAS = Revised Children's Manifest Anxiety Scale. PCBT = Parent-involvement cognitive behavior treatment. GCBT = Group cognitive behavior treatment

Table 5

Single Degree of Freedom Contrasts: Treatment Outcome, Parent Completed Measure

	Parameter	SE	t Value	p Value	95% CI
RCMAS/P					
ME: Time	12.15	2.05	5.94	<.001	8.14 to 16.16
ME: Treatment	-0.38	.61	-.62	> .05	-1.58 to 0.82
SME: Pre-Post for PCBT	4.59	0.62	7.40	<.001	3.37 to 5.82
SME: Pre-Post for GCBT	13.16	4.28	3.08	<.001	3.49 to 5.76

Note. ME = Main effects. SME = Simple Main Effects. RCMAS/P = Revised Children's Manifest Anxiety Scale/Parent Version. PCBT = Parent-involvement cognitive behavior treatment. GCBT = Group cognitive behavior treatment

Figure Captions

Figure 1. Conceptual Model

Figure 2. Youth Model with Product Term

Figure 3. Parent Model with Product Term

Figure 4. Final Youth Model

Figure 5. Final Parent Model

Figure 1.

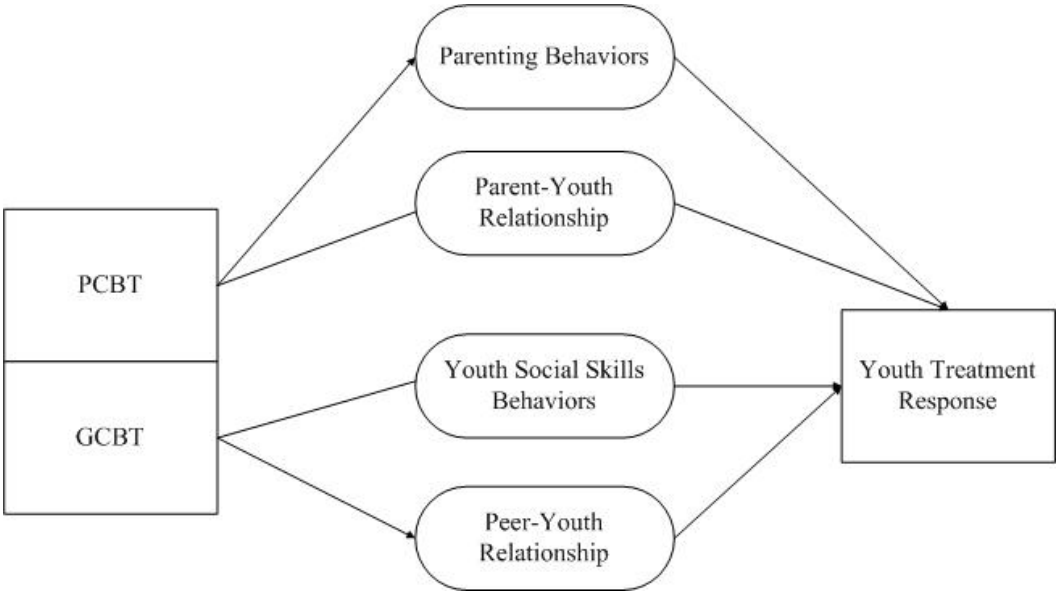
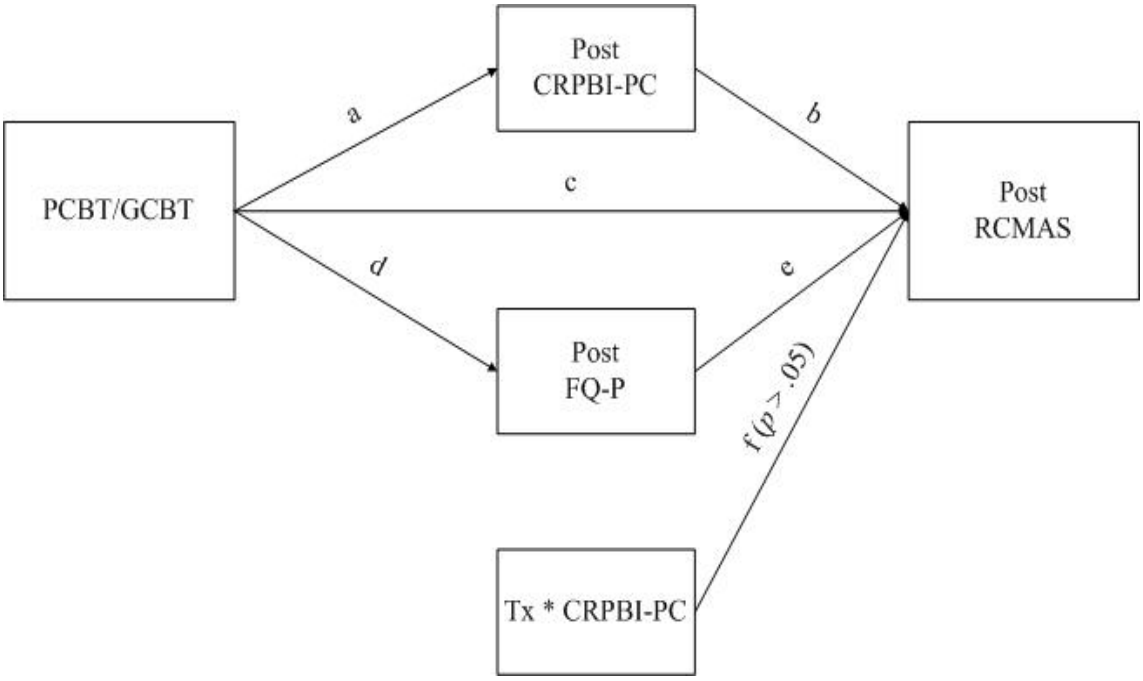
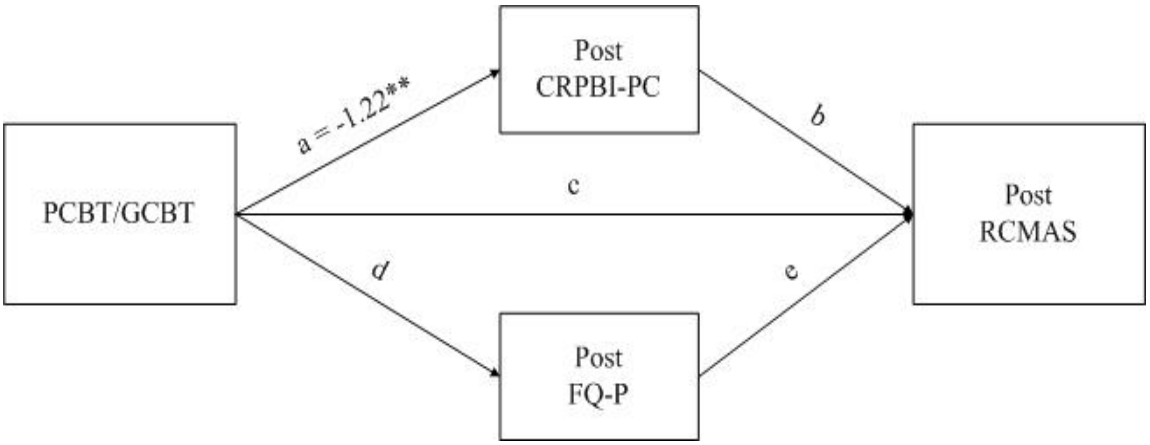

Parenting Behaviors
Parent-Youth Relationship
PCBT
GCBT
Youth Social Skills Behaviors
Peer-Youth Relationship
Youth Treatment Response

Figure 2.



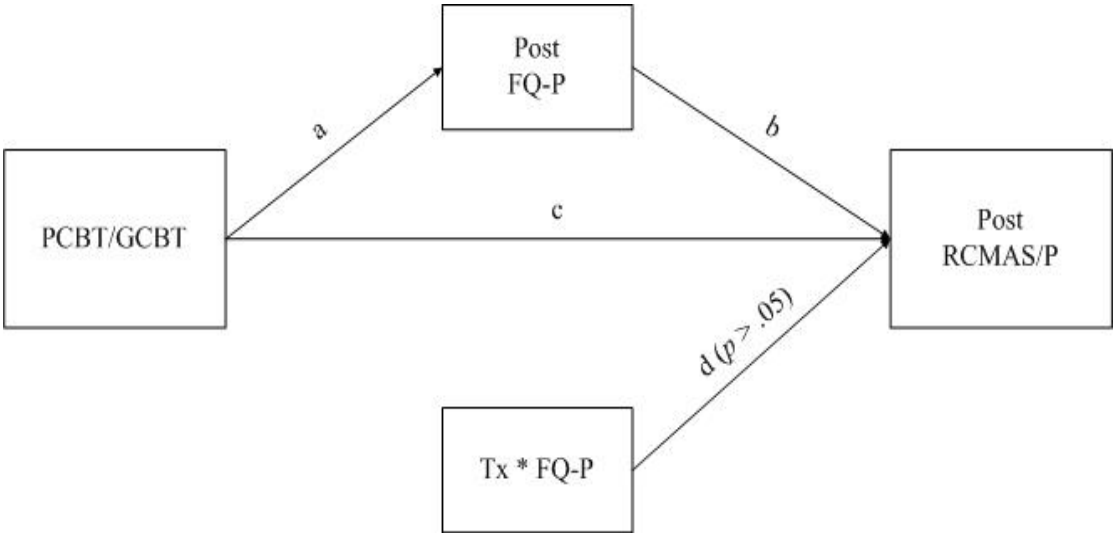
Note. PCBT = Parent-Involvement Cognitive Behavior Treatment. GCBT = Group Cognitive Behavior Treatment. FQ-P = Friendship Questionnaire-Positive Interactions. CRPBI-PC = Children's Report of the Parenting Behavior Inventory-Psychological Control. RCMAS = Revised Children's Manifest Anxiety Scale. Tx * CRPBI-PC = Interaction term between treatment (PCBT/GCBT) and CRPBI-PC

Figure 3.



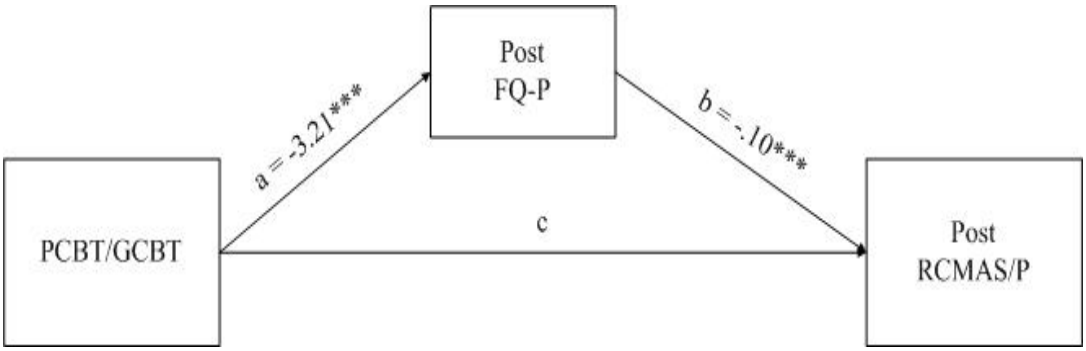
Note. PCBT = Parent-Involvement Cognitive Behavior Treatment. GCBT = Group Cognitive Behavior Treatment. FQ-P = Friendship Questionnaire-Positive Interactions. CRPBI-PC = Children's Report of the Parenting Behavior Inventory-Psychological Control. RCMAS = Revised Children's Manifest Anxiety Scale. ** = $p < .01$

Figure 4.



Note. PCBT = Parent-Involvement Cognitive Behavior Treatment. GCBT = Group Cognitive Behavior Treatment. FQ-P = Friendship Questionnaire-Positive Interactions. Control. RCMAS/P = Revised Children's Manifest Anxiety Scale/Parent Version. Tx * FQ-P = Interaction term between treatment (PCBT/GCBT) and FQ-P.

Figure 5.



Note. PCBT = Parent-Involvement Cognitive Behavior Treatment. GCBT = Group Cognitive Behavior Treatment. FQ-P = Friendship Questionnaire-Positive Interactions. Control. RCMAS/P = Revised Children's Manifest Anxiety Scale/Parent Version. *** = $p < .001$

Footnotes

[1]Several 2x2 between-within subjects analyses of variance were also performed on each of the mediators (i.e., the parent and peer measures described in Chapter 3) to explore treatment specificity effects from a limited information estimation framework. If there are treatment specificity effects, a Treatment by Time of assessment interaction should result. These analyses revealed two statistically significant Treatment by Time interactions: for youth completed measures, CRPBI-PC; for parent completed measures: FQ-P.

[2] The differential effect treatment of the FQ-P on the RCMAS was not examined as a result of a lack of Treatment x Time interaction effect in the 2 x 2 analysis of variance.

[3]The total effects of treatment on the RCMAS are a combination of the direct path from treatment to RCMAS, and the indirect effect as a result of the significant path from treatment to the FQ-P.

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PUBLICATIONS

Silverman, W. K., & Marin, C. E. (2009). The worried child: A youth with multiple anxiety disorders. In C. A. Galanter and P. S. Jensen (Eds.), *DSM-IV-TR casebook and treatment guide for child mental health* (pp. 265-279). Arlington, VA: American Psychiatric Publishing.

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CONFERENCE PRESENTATIONS

Marin, C. E., Rey, Y., Nichols-Lopez, K., Hernandez, M., & Silverman, W. K. (2009, August). *Childhood Anxiety Sensitivity Index: Measurement Equivalence in Latino Youth.* Poster presented at the annual convention of the American Psychological Association, Toronto, Canada.

Rey, Y., Marin, C. E., Carter, R., & Silverman, W. K. (2008, November). *Another Look at European-American and Latino Youths' Treatment Response to Exposure-Based Cognitive-Behavioral Treatment for Phobic and Anxiety Disorders*. In E. Varela (Chair), Anxiety in Latino Youth: Prevalence, expression, and socio-cultural influences. Symposium conducted at the annual convention of the American Association of Cognitive and Behavioral Therapies (ABCT), Orlando, Florida.

Marin, C. E., Moreno, J., Rey, Y., & Silverman, W. K. (2008, November). *Therapy Specificity and Mediation in Family and Group Cognitive Behavioral Therapy.* In C. Alfano (Chair), Symposium conducted at the annual convention of the American Association of Cognitive and Behavioral Therapies (ABCT), Orlando, Florida.

Marin, C. E., Hernandez, I., Rey, Y., Nichols-Lopez, K. & Silverman, W. K. *Maternal Control and Acculturation in Relation to Anxiety Symptoms in Hispanic-Latino Youth.* Poster presented at the Annual Meeting for the Association for Behavioral and Cognitive Therapies. Orlando, FL. November 2008.

Muñiz-Leen, A., Nichols-Lopez, K. A., Marin, C. E., Rey, Y., Hernandez, M., & Silverman, W. K. *Anxiety Sensitivity's Facets in Relation to Anxious and Depressive Symptoms.* Poster presented at the Annual Meeting for the American Academy of Child and Adolescent Psychiatry. Boston, MA. October 2007.

Bleiker, C. A., Marin, M. M., Marin, C. E., Johnson, J., & Winsler, A. *Across and Beyond Borders: A study of transnational families in Miami.* Colloquium presented at the International Conference on Ethnography and Education, Migrations and Citizenships. Barcelona, Spain. September 2007.

Marin, C. E., Rey, Y., Nichols-Lopez, K. A., & Silverman, W. K. *Development of Childhood Anxiety: Relations Between Child Control and Parenting.* Poster presented at the Annual Meeting for the American Psychological Association. San Francisco, CA. August 2007.

Marin, C. E., Saavedra, L. M., Franco, X., & Silverman, W. K. *Test-Retest Diagnostic Reliability of the Spanish Version of the Anxiety Disorders Interview Schedule for DSM-IV (ADIS for DSM-IV: C/P): Child and Parent Versions.* Poster presented at the 26th Annual Anxiety Disorders Association of America conference in Miami, FL. March 2006.

Marin, C. E., Buhrmaster, M., & Branscum, E. *The Importance of Multi-Informants When Looking at Childhood Behavior Problems.* Poster presented at the Second Annual Psi Chi Conference at Florida International University, April 2002.

Marin, C. E. Buhrmaster, M., Pages, F., Rodriguez, J., Aguilar, A., et al. *Ethnic Differences of the Bully-Victim Social Roles in Young Children.* Poster presented at the Psi Chi Conference at Florida International University, April 2001.