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A Systematic Review and Meta-Analysis of the Effectiveness of Child-Parent Interventions for Children and Adolescents with Anxiety Disorders

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A SYSTEMATIC REVIEW AND META-ANALYSIS OF THE EFFECTIVENESS OF CHILD-PARENT INTERVENTIONS FOR CHILDREN AND ADOLESCENTS WITH ANXIETY DISORDERS

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS iii

LIST OF TABLES x

LIST OF FIGURES xi

ABSTRACT xii

CHAPTER ONE: INTRODUCTION 1
Background 1
History of Research on Childhood and Adolescent Anxiety Disorders 2
Statement of the Problem 3
Purpose of the Study 4
Research Questions 5
Overview of Methodology 6
Systematic Review and Meta-Analysis 6
Limitations of Meta-Analysis 8
Significance of the Study 10
Relevance to Social Work 10
Practice Implications 10

CHAPTER TWO: LITERATURE REVIEW 13
Definitions 13
Assessment 25
Family Observations 25
School and Peer Observation 26
Measures 27
Parental Factors 28
Child-Parent Interventions 32

CHAPTER THREE: METHODOLOGY 41
Systematic Review of the Literature 41
Problem Formulation 42
Description of Methods Used in Primary Research 43
Criteria for Inclusion and Exclusion of Studies in the Review 44
Search Strategy for Identification of Relevant Studies 46
Conducting and Documenting the Search and Selection Process 47
Criteria for Determination of Independent Findings 48
Statistical Procedures and Conventions 49
Treatment of Qualitative Research 55

CHAPTER FOUR: RESULTS 56
Meta-Analysis Studies 56

Research Designs 56
Participants 64
Setting 68
Treatment Fidelity 69
Meta-Analysis Results 70
Waitlist Control 73
Follow-Up 74
Publication Bias 75

CHAPTER FIVE: DISCUSSION 77
Small Effect Size 78
Delayed Effects 79
Limitations and Implications for Future Research and Practice 80
Follow-Up Data 81
Small Sample Size 81
Non-Qualifying Studies 81
Statistical Information 82
Ethnicity and Socioeconomic Status 83
Age 84
Gender 84
Secondary Diagnoses 85
Parental Anxiety 85
Conclusion 86

APPENDIX A: CLINICAL TRIALS OF FAMILY INVOLVEMENT FOR CHILDREN AND ADOLESCENTS WITH ANXIETY DISORDERS 88

APPENDIX B: LITERATURE REVIEWED 98

REFERENCE LIST 105

VITA 116

LIST OF TABLES

Table 1: Detailed Study Information 57

Table 2: Family Demographic Information 66

Table 3: Diagnoses 67

Table 4: Study Settings 69

Table 5: Treatment Providers 70

Table 6: Post-Treatment Data 72

Table 7: Post-Treatment Test for Homogeneity Using Random Effects Model 73

Table 8: Waitlist Control Data 74

Table 9: Follow-Up Data 74

Table 10: Follow-Up test for Homogeneity Using Random Effects Model 75

LIST OF FIGURES

Figure 1: Funnel Plot of Standard Error of Hedges' *g* for Post-Treatment Data 76

ABSTRACT

Anxiety disorders are the most prevalent psychiatric disorders in childhood (Hirshfeld-Becker & Biederman, 2002; Walkup & Ginsburg, 2002), occuring in approximately twenty percent of the population (APA, 2000; Langley Lindsey, Bergman & Piacentini, 2002). Children and adolescents with anxiety disorders often experience many detrimental effects such as low-self esteem, issues with social and family relationships, and a decrease in overall functioning, including academic performance. In addition, if left untreated or unrecognized, anxiety disorders in childhood often lead to more severe symptoms in adulthood including depression, substance abuse, suicidal ideation, and other comorbid anxiety disorders. Evidence suggests that anxiety disorders are transmitted intergenerationally, with 60 to 80 percent of parents with anxiety disorders having children with anxiety disorders (Last, Hersen, Kazdin, Orvaschel & Perrin, 1991; Merikangas, Dieker & Szatmari, 1998), which can further exacerbate anxious symptoms. With children and parents cohabitating with anxious symtoms and passing down anxious symptoms to the next generation, the need exists to explore effective family based interventions.

The present study is a systematic review and meta-analysis that explores the effectiveness of child-parent interventions for childhood anxiety disorders. The research located during the literature search was coded for inclusionary criteria and resulted in eight qualifying individual randomized controlled trials (RCT) with a total of 710

participating children and adolescents (440 completer data). Statistical information from the studies were meta-analyzed using Hedges' *g* via CMA software [Version 2]. Results of the meta-analysis yielded a small, positive effect size of 0.263 (*SE*=0.103, 95% *CI*= 0.062 to 0.465) favoring child-parent cognitive behavioral interventions over individual and group cognitive behavioral therapy. Results were homogeneous indicating that any variance in effect size can be confidently attributed to sampling error (Q=7.728, df=7, p=0.357).

CHAPTER ONE

INTRODUCTION

Background

Anxiety disorders are the most common form of childhood psychiatric disorders (Hirshfeld-Becker & Biederman, 2002; Walkup & Ginsburg, 2002) affecting approximately 20% of the child and adolescent population (APA, 2000; Langley et al., 2002). Anxiety disorders in children often lead to difficulties with peers, family relationships, and academic achievement. Anxiety disorders are strongly associated with low self-esteem and serious mental disorders in adulthood such as depression, substance-abuse, other anxiety disorders, and a high cormorbidity rate within these disorders (Albano, Chorpita & Barlow, 2003; Flannery-Schroeder, Choudry, Kendall, 2005; Greco & Morris, 2004; Hirshfeld-Becker & Biederman, 2002; In-Albon & Schneider, 2007; Langley et al,. 2002; Ollendick, Birmaher & Mattis, 2004). According to the DSM-IV-TR (APA, 2000), the spectrum of anxiety disorders includes Separation Anxiety Disorder, Panic Disorder, Generalized Anxiety Disorder, Social Phobia, Specific Phobia, Obsessive-Compulsive Disorder, and Posttraumatic Stress Disorder. The focus of this paper will be on the most frequently occurring anxiety disorders in childhood, which are Specific Phobia, Generalized Anxiety Disorder, Social Phobia, and Separation Anxiety Disorder (Ollendick et al., 2004). Panic Disorder is also included in this paper due to the

high cormorbidity rate of Panic Disorder and other types of anxiety disorders occurring in childhood (Albano et al., 2003; Ollendick, et al., 2004).

History of Research on Childhood and Adolescent Anxiety Disorders

Studies discussing anxiety disorders in children and adolescents have been described in the literature for decades, most famously Freud's Little Hans and Watson's Little Albert. Both these cases described anxieties that existed in young children. Little Hans was viewed from a psychoanalytic framework. Little Albert's specific phobia was a product of behavioral theory or classical conditioning.

Although these studies have generated much curiosity about the theoretical frameworks used, much work was still needed to understand the complexities surrounding anxiety disorders, specifically during childhood (Albano et al., 2003). The evolution of the Diagnostic and Statistical Manual (DSM) (APA, 2000) has continued to advance the understanding of childhood anxiety disorders throughout the past two decades. It was not until the late 1980's that anxiety disorders during childhood were studied more intensively (Albano et al., 2003; Vasa & Pine, 2003). The DSM-III (APA, 1980) and the DSM-III-R (APA, 1987) first identified "overanxious disorder" as persistent worry occurring during childhood (Albano et al., 2003; Vasa & Pine, 2003). This addition to the DSM allowed clinicians the opportunity to better understand anxiety disorders in children and adolescents (Albano et al., 2003). The DSM-III (APA, 1980) and DSM-III-R (1987) allowed for three separate classifications for anxiety disorders present throughout childhood: overanxious disorder, Separation Anxiety Disorder, and avoidant disorder of childhood or adolescence. According to Albano et al (2003), this

inspired an influx of research and studies pertaining to child and adolescent anxiety disorders. In the DSM-IV (APA, 1994) overanxious disorder was eliminated, as it was criticized for being too vague, and was replaced with GAD (Albano et al., 2003; Vasa & Pine, 2003). Currently in the DSM-IV-TR (2000), under GAD, there are distinct category provisions for children, which clinicians can use to help determine a proper diagnosis for children and adolescents. These categories are: Separation Anxiety Disorder, Generalized Anxiety Disorder, Specific Phobia, Social Phobia, Obsessive-compulsive Disorder, and Posttraumatic Stress Disorder. Within the past decade, there has been an influx of research on not only theoretical treatment methods of anxiety disorders, but also their causes and consequences. More specifically, neurobiological researchers have found evidence that there is a neuropsychological reaction involved in the development and maintenance of anxiety disorders (Vasa & Pine, 2003).

Statement of the Problem

Anxiety disorders in childhood are a pervasive issue affecting approximately 20% of the population (APA, 2000; Langley et al., 2002). Children with anxiety disorders often have symptoms of more than one type of anxiety, and there is a strong likelihood that without proper intervention their symptoms will persist through adulthood. Children with anxiety disorders also have an increased chance of developing more serious symptoms such as depression, substance abuse, and suicidal ideation when left untreated (Beidel, Fink & Turner, 1996).

Evidence suggests a genetic and/or environmental intergenerational transmission of anxiety. An estimated 60% (Merikangas et al., 1998) to 80% (Last et al., 1991) of

parents with anxiety disorders also have children with anxiety disorders. This implies a cyclical process of anxiety, where children with untreated anxiety disorders grow into adults with anxious symptomologies and then have children, passing along the predisposition for anxiety to their children and continuing the cycle onward to the next generation. The need therefore exists to find family-based interventions that are deemed effective.

Researchers have yet to systematically explore the effectiveness of direct child-parent interventions from multiple theoretical frameworks. It is likely that most published research and meta-analyses have focused on individual cognitive behavioral therapies, with a recent emergence of family cognitive behavioral interventions because they are manual-based and easier to quantify. However, other theoretical frameworks such as parent-child interaction therapy or child-parent psychotherapy have yet to be meta-analyzed or discussed in systematic reviews.

Purpose of the Study

The purpose of this study is to examine the effectiveness of direct child-parent interventions for children with anxiety disorders. This was accomplished by means of (1) conducting a systematic review of the literature, which includes published and unpublished research conducted from 1980 to 2009; (2) determining the effectiveness of child-parent interventions by conducting a meta-analysis of studies that meet the inclusionary criteria for child-parent intervention research; (3) disseminating and critically examining the results of the meta-analysis; and (4) making successive research and practice recommendations for the future.

Direct child-parent interventions that are included are family cognitive behavior therapies, family play therapies, parent-child interaction therapies, and others that include direct involvement between the child and parent as the primary intervention. Populations considered for this review are children who have a primary diagnosis of Separation Anxiety Disorder, Generalized Anxiety Disorder, Social Phobia, Specific Phobia, or Panic Disorder. At least one parent or primary caretaker also needs to have participated in the study.

Research Questions

The primary objective of the review is to determine if parent-child interventions are effective for children with anxiety disorders. The review compares child-parent therapies with other types of family-based treatments such as family-cognitive behavioral therapy, child-parent psychotherapy, parent involvement, and family play therapy. The review also compares child-parent interventions with different types of anxieties such as separation anxiety disorder, generalized anxiety disorder, social phobia, panic disorder, and specific phobia to explore similarities and differences in the effectiveness of treatment types to the various types of anxiety disorders.

The specific questions guiding this review are as follows:

(1) Is the inclusion of at least one parent/caretaker actively involved in the therapeutic process an effective intervention for children with anxiety disorders?

(2) Is one form of child-parent intervention therapy more effective than others in treating children with anxiety disorders?

(3) Are there differences in the effectiveness of child-parent therapies given the specific types of anxiety?

Overview of Methodology

Systematic Review and Meta-Analysis

Systematic review and meta-analysis are considered forms of evidence-based practice. Evidence-based practice (EBP) is the process of integrating the best evidentiary information available with "clinical expertise and client values" (Sackett, Straus, Richardson, Rosenberg & Haynes, 2000, p. 1). In 1992 a Canadian medical group first coined the term evidenced-based medicine to describe the usage of best evidence for the care and decision-making process of patients (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996). The term evolved to EBP as it caught the attention of those in helping professions such as social work and psychology (Gambrill, 2006). Gibbs (2003) describes EBP as (1) being driven by values of putting forth best practices by the researcher or clinician; (2) establishing a well-defined question that guides the research for best practices; (3) exploring and exhausting the literature to answer issues in question; (4) critically appraising the evidence found for validity and worth; (5) applying the evidence to policy or practice; (6) evaluating the effectiveness of the application; and (7) disseminating the results.

Systematic reviews are used to answer any number of research questions, and subsequent meta-analyses can evaluate data disseminated in multiple quantitative research studies (Littell, Cocoran & Pillai, 2008). Systematic reviews and meta-analysis often work in tandem, but can also be conducted independently. In fact, the

appropriateness of conducting a meta-analysis is found through the process of a systematic review. Only quantitative data (e.g., quasi-experimental designs and randomized control trials) can be used in a meta-analysis and a systematic review of the literature may only replicate studies that were conducted qualitatively. In this case, a narrative analysis, also an EBP, would be deemed appropriate for the explication of research findings.

A systematic review involves a specific sequence that is akin to Gibb's (2003) EBP definition. The steps are (1) define the research question; (2) determine the types of studies needed to answer research questions; (3) conduct a comprehensive search of the literature; (4) decide which research can be included or excluded based on inclusionary criteria; (5) critically appraise the included studies; (6) synthesize the studies and assess for homogeneity (discussed in Chapter Three); and (7) disseminate the findings (Petticrew & Roberts, 2006).

A meta-analysis works in conjunction with systematic reviews. It involves the statistical pooling of similar quantitative studies including those found to have various degrees of significance. A standard effect size is first calculated for each of the included studies followed by a calculation of a summary effect size generated by pooling effect sizes from each of the individual studies (Petticrew & Roberts, 2006) (see Chapter Three for detailed information on conducting a meta-analysis).

Meta-analysis was a term coined by Gene V. Glass (1976), an educational researcher at the University of Colorado, to describe an "analysis of an analysis" (p. 3). Glass posited that meta-analysis was necessary to make sense out of the increasingly

large body of research available. According to Glass, "Meta-analysis was created out of the need to extract useful information from the cryptic records of inferential data analyses in the abbreviated reports of research in journals and other printed sources" (p. 3). Glass caught the attention of educational and social science researchers, and meta-analysis has gained respect across the social and medical sciences as a valid and rigorous methodology.

Limitations of Meta-Analysis

Meta-analysis is not without its limitations. The limitations discussed henceforth are described as *comparing apples to oranges*, *garbage in garbage out*, *the file drawer problem* and *publication bias*. These limitations are applicable to most methodologies but they are most commonly attributed to meta-analysis (Cooper & Hedges, 2009).

Comparing apples to oranges. According to Glass (2000), from the 1970's to the present critics have regarded meta-analysis as an invalid methodology because it compares "apples to oranges". Glass has steadfastly defended meta-analysis by stating, "Of course it mixes apples and oranges; in the study of fruit nothing else is sensible; comparing apples and oranges is the only endeavor worthy of true scientists; comparing apples to apples is trivia" (Glass, 2000).

In meta-analysis, data sets from multiple studies are combined and assessed for effect size. Critics argue that often data sets are too dissimilar to be included in a meta-analysis, resulting in skewed results and furthering the notion of *garbage in garbage out* (see below). However, the aim of meta-analysis is to be able to examine all the research

and hence contribute to the rigor of the meta-analysis. Inclusionary and exclusionary criteria also help to control for mixing data that is too divergent (Littell et al., 2008).

Garbage in, garbage out. Another criticism of meta-analysis is the notion of "garbage in garbage out". This refers to the quality of the studies used in meta-analysis research. Because the aim of meta-analysis is to include all research, the quality of particular research included may lack eminence. In this case, the integrity of the meta-analysis comes into question. Lipsey and Wilson (2001) suggest only including research that is well-designed. However, there is no consensus as to what constitutes quality research. Rigorous coding procedures can help determine which studies are to be included or excluded.

File drawer problem. The file drawer problem refers to fugitive or gray literature that is difficult to find as it is unpublished and may be sitting in the 'file drawer' of a researcher due to non-significant findings. According to Cooper and Hedges (2009), unpublished research is often as superior as published research but may not be published due to the results being non-significant. In meta-analysis it is important to include fugitive data to determine effect sizes for research but to also account and control for publication bias.

Publication bias. When combining *p*-values obtained through published studies, an upwards bias into the effect sizes can be the result (Lipsey & Wilson, 2001). It is important when conducting any studies, particularly meta-analyses, that this effect be reduced as much as possible. Including gray or fugitive literature is one way in which publication bias can be minimized. As most published studies contradict a null hypothesis

of no effect at 0.05, unpublished research and presentations will be included in this study to help minimize the selection bias (Kulinskaya, Morgenthaler & Staudte 2008).

Significance of the Study

Many studies have been conducted that attempt to advance practice in the field of childhood anxiety disorders. These studies are both qualitative and quantitative in nature and stem from both cognitive behavioral and psychodynamic frameworks. However, a gap exists in the literature when considering child-parent based interventions for children with anxiety disorders. It has only been within the past decade that parental influences pertaining to the cause and maintenance of anxiety in children have been researched.

As of this writing, no systematic reviews or meta-analyses were located that comprehensively examine the research involving multiple frameworks of child-parent interventions for children with anxiety disorders. There have been a very limited number of systematic reviews and meta-analyses located and they are limited to parent-child cognitive behavioral interventions only. This study will begin to bridge the gap in the literature by systematically reviewing and conducting a meta-analysis on all available studies on child-parent interventions for children with anxiety disorders.

Relevance to Social Work

Practice Implications

Since anxiety disorders exist in up to 20% of the child and adolescent population (APA, 2000; Langley, et al., 2002), it is important that social workers and other mental health practitioners who work with children and families understand the most effective interventions for this population. There is a broad range of therapeutic modalities that

clinicians may chose from when treating children with anxiety disorders, such as cognitive-behavioral oriented therapies, psychodynamic therapy, behavioral interventions, group therapy, and family therapies. Within these categories, many more combinations and options exist. The field of social work stresses the importance of a systems perspective when working with clients (Bronfenbrenner, 1981; NASW, 2008). This entails examining the entirety of a client system. For children and adolescents, the family is a system that cannot be ignored, as they are generally reliant and dependent upon their families for their physical and emotional needs. Many mental disorders, particularly anxiety disorders, originate within the family unit and may perpetuate into adulthood until intervention occurs (Creswell, Willetts, Murrary, Singhal & Cooper, 2008). Family-based treatments allow for generalization to the home environment, where anxiety may be reinforced (Walkup & Ginsburg, 2002). The National Association of Social Workers (NASW, 2008), which is the governing organization for social work practitioners, has an ethical code of conduct by which all social workers are required to abide (NASW, 2008). Within the NASW Code of Conduct (2008) it explicitly states under the category of *Importance of Human Relationships* that social workers must understand that relationships between people are an important change-agent. Social workers are expected to strengthen relationships to enhance the wellbeing of individuals and families (NASW, 2008). Enforcing *Social Justice* is also a core value that asks social workers to focus their efforts on vulnerable and oppressed populations. Under the category of *Competence* it states that social workers should aim to add to the knowledge base of the profession (NASW, 2008). These core ethical standards combined with the

knowledge that anxiety disorders cause significant and pervasive distress to children (a vulnerable population) (NASW, 2008), and understanding that anxiety often originates from and is reinforced by families leads to the question, is family therapy an effective intervention for children with anxiety disorders?

CHAPTER TWO

LITERATURE REVIEW

Research efforts demonstrating efficacy in the treatment of childhood anxiety disorders has been on the rise for the past 15 years. Anxiety disorders are considered to be the most commonly diagnosed psychopathology in childhood (Hirshfield-Becker & Biederman, 2002; Walkup & Ginsburg, 2002) with a great likelihood that symptoms will become more pervasive though adulthood (Choate, Pincus, Eyberg & Barloe, 2005; Ginsburg & Schlossberg, 2002; Rapee, 1997; Siqueland, Kendall & Steinberg, 1996). There has been a recent emergence of research investigating the effectiveness of child-parent interventions for the treatment of childhood anxiety disorders due a strong intergenerational link to causality. This review discusses evidenced-based child-parent interventions and theories investigated most frequently in the literature.

Definitions

Children and Adolescents - This paper focuses on children and adolescents with anxiety disorders. For the purposes of this paper, children are defined as those who are aged 12 and under. Adolescents are defined as those who are aged 13 to 17. Any exceptions to this definition are explicitly identified. Furthermore, childhood is defined as occurring at age 17 and under.

Child-Parent Interventions **-** For the purposes of this paper, 'child-parent interventions' is a broad term used to define psychosocial treatment interventions that

occur within the context of a child and adult primary caregiver, usually a parent. Parent-child treatment modalities discussed within this paper include at least one intergenerational family unit, such as a parent and child.

Anxiety Disorders - When defining anxiety disorders in children and adolescents, it is important to first make the distinction between normal childhood and adolescent developmental fears and clinically diagnosed anxiety disorders. Normal childhood fears can lead to anxiety disorders, but more often than not they are phases that typically wean with the onset of the next developmental stage and do not lead to pervasive outcomes (Greco & Morris, 2004).

Depending on the age and developmental stage of children, certain fears commonly occur. When children reach about one year of age, they will often become fearful of strangers particularly when strangers begin to occupy their personal space with requests or assertions to hold the child or to make physical contact with them in some manner (Brazelton, 1992). Fears of the bathtub are also common between ages one and two. At around age three, toddlers' imaginations begin to emerge. As a result, toddlers may begin to develop fears associated with loud noises like thunder or sirens. They may also begin to develop fears in association with animals, most commonly dogs (Moore & Carr, 2000). It is also common for toddlers to begin to fear going to strange and different places that they have not previously shown concern for, such as doctors' offices or neighbors' homes (Brazelton, 1992). Ages four through six mark the onset of fears of monsters, the dark, the closet, "bad-guys", scary animals, and under the bed (Brazelton & Sparrow, 2001; Moore & Carr, 2000). Nightmares are also common during this time,

which may enhance fears of monsters being under the bed, the closet in their room and the dark. When confronted with any of these fears, children will typically cry in protest, have a tantrum, or seek close proximity of their caretaker for comfort and security (Moore & Carr, 2000). They will be able to be comforted and their fears will subside within minutes. These fears will not negatively impact their daily functioning. As children continue to develop, they will no longer experience these fears but may develop other age-appropriate fears and anxieties (Brazelton & Sparrow, 2001; Moore & Carr, 2000).

It is common and developmentally appropriate for school-aged children to fear new experiences such as starting school or extra-curricular activities, separation from their parents (Wems & Costa, 2005), social rejection, war, bedtime, loud noises, and burglars (Brazelton & Sparrow, 2001; Moore & Carr, 2000). Adolescents often will fear social rejection, death of a loved one, parental divorce or separation, and dating relationships (Brazelton & Sparrow, 2001; Moore & Carr, 2000; Weems & Costa, 2005). These fears and anxieties in school-aged children and adolescents, like with younger children, are also developmentally appropriate and generally subside with the next course of development. When these fears become exaggerated and pervasive enough to impact daily functioning then a disorder of functioning occurs and intervention becomes indicated.

Delineating the difference between what are considered normal adaptive fears and what are unrealistic, invasive appraisal of perceived threats is important to understand. Anxiety disorders are characterized when children perceive certain stimuli as irrationally

being an insidious threat to the extent that their reactions cause significant impairment or dysfunction in one or more facets of their life, such as school, familial relationships, peers, or social situations (Moore & Carr, 2000). Anxiety disorders that occur most often in children under age 18 include Separation Anxiety Disorder, Social Phobia, Specific Phobia, and Generalized Anxiety Disorder. Panic Disorder occurs less frequently but is often a comorbid diagnosis with Social Phobia and Specific Phobia (Ollendick et al., 2004).

Separation Anxiety Disorder - Separation Anxiety Disorder (SAD) is characterized when inappropriate fears are triggered upon separation from a primary attachment figure, such as a child's mother (Moore & Carr, 2000). SAD is usually first diagnosed in childhood and the prevalence rate is approximately 4% in children and adolescents (APA, 2000). SAD accounts for approximately half of referrals for mental health treatments for anxiety disorders (Cartwright-Hatton, McNicol & Doubleday, 2006). It has serious repercussions, as it will often limit the activities that a child and his or her parents can participate in, including school and social activities. For parents, missed work and familial distresses are common outcomes of their children's SAD (Fischer, Himle & Thyer, 1999).

It is important to note that separation anxiety is a part of normal development for a child. Symptoms of anxiety will often surface when an attached figure leaves the child for any period of time. Crying, tantrums, and oppositional behavior are common but will generally wean within minutes of the caretaker's departure. Separation anxiety becomes dysfunctional when a child displays separation behaviors that are neither

developmentally nor contextually appropriate and interfere with daily functioning. The behaviors that a child exhibits can range from crying, protesting and tantruming to injurious behaviors inflected upon the self and others around them. They may also begin to become dependent and clingy of their caretakers even when separation is not a factor. Anticipation of separation may also produce behaviors such as defiance, resistance, and hyperactivity, which may have caretakers begin to question whether or not separation is the issue or if their child may also have an emerging disorder such as attention-deficit hyperactivity disorder. Due to the high rate of comorbidity for SAD and other anxiety or mental disorders, a thorough assessment involving multiple measures is critical for the treatment process.

Children with SAD often exhibit an extreme response of anxiety, which may include behavioral, emotional and somatic reactions concerning an anticipated or actual routine separation of an attachment figure (APA, 2000). The peak of onset of SAD is generally between the ages of seven and nine years (Maid, Smokowski & Bacallao, 2008) and may have been triggered by a major stressor such as moving, death, or illness (Wachtel & Strauss, 2004). Children with SAD display a range of symptoms depending on their developmental stage but they all have an underlying fear that something catastrophic will transpire while they are away from their caretaker which will prevent reunification (Maid et al., 2008). Somatic complaints such as stomach pains and headaches and are often reinforced when they result in reunification of the child and attached figure (Maid et al., 2008). Unfortunately, as children with SAD are trying to maintain proximity with their caretaker, other important facets of their lives might

become neglected such as social relationships and academic achievement (Maid et al., 2008). Children with SAD often have many friends but may have difficulty maintaining their friendships due to their inability to separate from their caretakers. Academic performance may also decline as children with SAD are staying home from school more often and falling behind in their work. While they are at school, many children with SAD may spend a disproportionate amount of time in the nurse's office with somatic complaints that may be attributed to separation anxiety and requests to go home furthering their difficulties with academic achievement and spending time within their social setting (Maid et al., 2008).

Social Phobia - The essential feature of Social Phobia is the presence of excessive fear of embarrassment or rejection when confronted with social or performance situations (APA, 2000; Beidel & Turner, 2007). Social Phobia is estimated to have a lifetime prevalence rate of approximately 3% to 13% and is considered to be the most common of all anxiety disorders (APA, 2000). Many adults with Social Phobia report that their symptoms began in childhood but were not diagnosed until adulthood (Albano, et al., 2003; Beidel & Turner, 2007).

Social Phobia may be defined as one meeting with extreme distress during social interactions despite the strong desire for engagement in social relationships and events (Beidel, Morris & Turner, 2004). Children may present themselves as shy and tentative in social situations, but in order for Social Phobia to be diagnosed the following criteria must be met in accordance to the DSM-IV-TR (APA, 2000). Social Phobia, as defined by the DSM-IV-TR, is characterized by:

A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. Note: in children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.
B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed Panic Attack. Note: In children, the anxiety may be expressed by crying, tantrums, freezing, shrinking from social situations with unfamiliar people.
C. The person recognizes that the fear is excessive or unreasonable. Note: in children, this feature may be absent.
D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.
E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.
F. In individuals under age 18 years, the duration is at least 6 months.
G. The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Separation Anxiety Disorder, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, or Schizoid Personality Disorder).
H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson's disease, or exhibiting abnormal eating behavior in Anorexia Nervosa or Bulimia Nervosa.
Specify if: Generalized: if the fears include most social situations (also consider the additional diagnosis of Avoidant Personality Disorder). (p. 456)

The onset of Social Phobia in general occurs in late adolescence and in early adulthood. However, Social Phobia does occur in young children as well (Beidel et al., 2004; Boggs, 2005). There is urgency for proper diagnosis and treatments for children with Social Phobia as the consequences are severe when left untreated. Children and

adolescents with Social Phobia often become physically distressed when conversing with peers, taking tests, or reading aloud in class. They may have heart palpitations, shakiness, gastrointestinal issues, hot flashes and chills (Beidel et al., 2004). They also tend to act shy and quiet most of the time, and become lonely as their symptoms of Social Phobia often provoke social isolation (Maid et al., 2008).

There also exists speculation that selective mutism is an extreme form of childhood social phobia (Boggs, 2005). Selective mutism occurs when one does not speak in certain social situations despite having normal verbal communication abilities. Selective mutism does not imply a choice but rather a feeling of debilitation of speech when expected to do so in social circumstances. Most often, children with selective mutism will speak normally at home but cannot speak at school, during extracurricular activities, or when out in public. In the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision (DSM-IV-TR) (APA, 2000), selective mutism falls under the category of a "disorders usually first diagnosed in infancy, childhood, or adolescence" (APA, 2000, p. 41). It is considered rare and is only found in 1% of children in mental health settings (APA, 2000). However, according to Biedel and Turner (1998), 40% of children diagnosed with Social Phobia also fear conversing with peers. Similarities between selective mutism and Social Phobia include having the ability for age-appropriate social interactions, but with fears of not being accepted or being humiliated inhibiting functioning.

Specific Phobia - Specific Phobia (SP) refers to the presence of persistent fear of an object or circumstance that does not include social or performance related situations

(social phobia), and the presence of the stimuli causes marked dysfunction that may lead to panic attacks and other physiological symptoms (Albano et al., 2003; Moore & Carr, 2000). SP occurs more commonly in children than in adolescents. Prevalence rates are estimated to occur at 7.2% to 11.3% of people over the course of a lifetime (APA, 2000). In children, the prevalence rates are estimated to be at approximately 5% (Costello & Angold, 1995) and occur more frequently among girls than boys (Essau, Conradt & Petermann, 2000).

Typical fears include animals, insects, blood, injections, water, and heights (Leahy, McGinn, Busch & Milrod, 2005). Specific phobias should not be seen as something that children would developmentally outgrow. Many adults with specific phobia report the onset beginning in childhood. In fact, only about 20% of adults with a childhood onset of SP actually see improvement in their symptoms (APA, 1994).

Generalized Anxiety Disorder - Generalized Anxiety Disorder (GAD) may be defined as the irrepressible and unrelenting pervasive feeling of worry and anxiety, which occurs more days than not and occurs for at least six months, and is not triggered by recent events (Masi, Millepiedi, Mucci, Poli, Bertini & Milantoni, 2004). According to the DSM-IV-TR (APA, 2000) GAD occurring in children must also include at least one physiological symptom and is also known as Overanxious Disorder of Childhood. Both children and adolescents generally have a high level of physical complaints (Masi et al., 2004). GAD may occur in as much as 19% of children under age 18 (Flannery-Schroeder, 2004), with adolescents being diagnosed more often than children (Albano et al., 2003).

A study conducted by Masi et al. (2004) showed that in a sample of 157 children and adolescents, only 25% of those children diagnosed with GAD did not have another anxiety disorder and approximately 38% had two or more associated anxiety disorders. Co-occurring affective disorders such as dysthymia and major depression are common, affecting approximately 53% of children with GAD (Masi, Mucci, Favilla, Romano, & Poli, 1999; Masi et al., 2004; Massion, Warshaw & Keller, 1993). Studies have also found an estimated 70% of children and adolescents diagnosed with dysthymia have a co-occurring GAD (Masi et al., 2004).

Children with GAD are frequently perfectionistic and will have persistent feelings of worry about their degrees of success in relation to events such as social situations, family relationships, and school performance. They are often regarded as being mature for their age as they put great emphasis on abiding by rules, being successful in school, and being eager to please (Flannery-Schroeder, 2004). However, children with GAD perceive catastrophic outcomes to certain events, causing persistent feelings such as worry and impending doom. They also are likely to have symptoms of physiological arousal, such as illness, restlessness, insomnia, irritability, and other symptoms that lead to an inability to function normally (Leahy et al., 2005).

Panic Disorder - Panic Disorder (PD) is characterized by recurrent and unexpected panic attacks resulting in extreme angst and distress (APA, 2000; Albano et al., 2003; Moore & Carr, 2000) which cannot be accounted for by medical conditions or drug usage. PD, which may be diagnosed with or without agoraphobia, is estimated to occur in approximately 1% to 2% of the population (APA, 2000). Agoraphobia is the

fear of experiencing a life-threatening event in association with open spaces where a sudden departure would be unattainable (Leahy et al., 2005). PD is considered to be rare in children under age 13, with the onset generally occurring between adolescence through the mid-30s (APA, 2000). PD affects adolescent females and women more frequently than males (APA, 2000; Ollendick, Birmaher & Mattis, 2005). In community samples, PD has been estimated to occur in .05% to 5% of children under age 18 (Hayward, Killen, Kraemer, Barr & Taylor, 2000). In pediatric clinics, estimates range from 0.2% to 10% (Kearney, Albano, Eisen, Allan & Barlow, 1997). However, symptoms of PD often present differently in children than in adolescents and adults and therefore may occur more frequently than published estimates (Albano et al., 2003). There are also an estimated 55% of children with a primary diagnosis of dysthymia who also have a co-occurring diagnosis of panic disorder (Masi et al., 2004), potentially increasing prevalence rates.

Symptoms of PD include intense physical symptoms such shortness of breath, chest pain, nausea, dizziness, feelings of choking, heart palpitations, shakiness, sweating, dissociating, and feelings of actively experiencing a heart attack or other medical crisis (Leahy et al., 2005). Due to the significance of symptoms presented, children are often misdiagnosed with asthma, arrhythmia, irritable bowl syndrome, or seizure disorders (APA, 2000). According to Ollendick et al. (2005), no longitudinal studies of children have been published so the developmental course of PD is unknown.

Obsessive Compulsive Disorder and Post-traumatic Stress Disorder - Although children with primary diagnoses of Obsessive-Compulsive Disorder (OCD) and Posttraumatic Stress Disorder (PTSD) are not included in this review, it is important to briefly discuss these disorders, as they are forms of anxiety.

OCD is characterized in the DSM-IV-TR (APA, 2000) as obsessions or impulses that are significant enough to cause marked distress or consume more than one hour per day. Obsessions are persistent thoughts or ideas that that are intrusive, cause anxiety, and are not controllable. Compulsions are repetitive behaviors or rituals which individuals feel compelled to perform as a means of reducing anxiety caused by the obsessive thoughts. However, compulsions often lead to increased anxiety states as well as guilt. Unlike adults who have OCD, children often do not recognize that they are experiencing either obsessive thoughts or compulsive behaviors.

PTSD is recognized as the development of dysfunctional symptoms that can occur following exposure to a traumatic event or experience such as witnessing or experiencing violence or threats of violence. PTSD may also occur as a result of indirect experiences such as learning of an unforeseen or violent death, serious harm, or threat of death or injury. In children it is characterized by disorganized or agitated behavior, re-experiencing the traumatic event, avoidance of the associated stimuli, persistent symptoms with increased anxiety, and causing a marked impairment in daily functioning. These symptoms are present for longer than one month (APA, 2000). Traumatic events for children typically include witnessing or experiencing domestic violence, war, serious injury or death of another person, and sexual abuse.

Both OCD and PTSD are considered to occur less frequently than other types of anxiety disorders. PTSD has a lifetime prevalence rate of 2.5% and affects approximately 8% of the adult population in the United States (APA, 2000). It is difficult to determine the number of children with PTSD, as many children who are exposed to trauma go unrecognized and untreated (Fletcher, 2003). Due to the small prevalence rates for OCD and due to the difficulty diagnosing PTSD, children with these as their primary diagnoses are being excluded from this review.

Assessment

When assessing for anxiety disorders in children, it is important to be aware of cultural and developmental factors that exist within the family unit. Choosing the appropriate methods, such as types of observations, interviews, and inventories for intervention should be customized for the individual dynamics present within each family (e.g., ages of children, anxiety disorder, parental psychopathology, blended-families, etc.).

Family Observations

A strong correlation exists between children with anxiety disorders and parents with marked symptoms of anxiety. This relationship has been established as being caused by both genetic and environmental influences (Albano et al., 2003; Greco & Morris, 2004). Research has suggested that up to 80% of children with anxiety disorders have a parent with a diagnosable anxiety disorder (Ginsburg & Schlossberg, 2002; Last et al., 1991). These relationships often result in anxieties being exacerbated within the context of the family among both children and parents, possibly resulting in a cyclical

process. Family observations are indicated for the proper assessment and corresponding treatment for childhood anxiety disorders. Types of family observations include coding parent-child dynamics with emphasis on restrictive or controlling behaviors. In a study conducted by Greco and Morris (2002) fathers who were parenting socially anxious children displayed higher levels of overt physical control such as completing tasks for children. This was in opposition to fathers of children who exhibited low social anxiety. Similar outcomes were observed in a study by Krohne and Hock (1991), in which mothers of socially anxious girls were more likely to be physically intrusive during tasks set up by researchers, as opposed to mothers of daughters with little to no social anxiety. Other methods for observing children with their parents include videotaping their interactions and coding them later for symptoms of anxiety and treatment effects (Kendall, Hudson, Choudhury, Webb & Pimentel, 2005). Social workers and other practitioners can also assess the family more informally during the initial intake interview, noting interactions and patterns that occur throughout the interview. Assessment is an ongoing process, and family observations can and need to be conducted throughout the assessment and treatment processes to gauge the effectiveness of interventions.

School and Peer Observation

Symptoms originating from Generalized Anxiety Disorder, Social Phobia, and Separation Anxiety Disorder are frequently presented during social situations with peers and during school hours. Observing children in these settings will lead to a more

comprehensive assessment and more thorough treatment plan. It will also help to determine if symptoms of anxiety are generalized beyond the family environment.

Similar to family observations, school and peer observations can be formal or informal. Coding sheets can be developed to assess for symptoms of anxiety for classroom or playground observations. Within the same setting, informal observations can be conducted and a coding sheet developed at a later time. Issues with ethics and parental consent may make it difficult to consider videotaping peer interactions.

Measures

Self, parent, and teacher report scales are measures used to assess anxiety disorders in children and adolescents. These scales and inventories provide global measures to detect symptoms of anxiety but do not give syndrome specific diagnoses (Kendall & Marris-Garcia, 1999). Example of commonly used inventories include the Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds & Richmond, 1978), Anxiety Disorder Interview Schedule for DSM-IV-C/P (ADIS-IV-C/P) (Silverman & Albano, 1996), Multidimensional Anxiety Scale for Children (child and parent version) (MASC) (March, Parker, Sullivan, Stallings & Parker, 1997), Child Behavior Checklist (CBL) (Achenbach & Edelbrok, 1991), State-Trait Anxiety Inventory for Children (STAI-C) (Speilberger, 1978), Spence Children's Anxiety Scale (SCAS) (Spence, 1998), and the Screen for Child and Anxiety Related Emotional Disorders (SCARED-R) (Muris, Mayer, Bartelds, Tierney & Bogie, 2001), and Coping Questionnaire: child and parent versions (CQ-C/P) (Kendall & Marrs-Garcia, 1999).

Parental Factors

It has only been within the past 15 years that parental anxiety and related behaviors have been researched as a contributing factor to the development and maintenance of childhood anxiety disorders (Choate et al., 2005; Ginsburg & Schlossberg, 2002; Rapee, 1997; Siqueland et al., 1996). Studies have determined that parental anxiety can be transmitted intergenerationally via genetics, the environment, or both (Merikangas, Avenevoli, Dierker & Grillon, 1999). Merkiangas et al. estimated children to be three times more likely to develop an anxiety disorder if one parent has an anxiety disorder, and six times more likely if both parents have an anxiety disorder. A study conducted by Beidel and Turner (1997) found similar results, with children being five times more likely to develop an anxiety disorder if one parent has a diagnosed anxiety disorder. Other risk factors include parental control, acceptance, and modeling (Wood, McLeod, Sigman, Hwang & Chu, 2003).

Parental control. Children with anxiety disorders report that their parents often are over-controlling, over-protective, and intrusive (Merikangas et al., 1999). These findings are consistent with retrospective studies that reported clinical and non-clinical anxious adults' parents as being both rejecting and controlling (Rapee, 1997). Several studies examining parental over-control have found that higher level of over-control was positively associated with higher levels of anxieties in children (see Ginsburg & Schlossberg, 2002 for review). Parental over-control was defined as restricting children's behavior, giving unnecessary commands, providing minimal independence, interfering unnecessarily, and limiting children's individuality.

Parental acceptance and attachment. According to Wood, McLeod, Sigman, Hwang, and Chu (2003), increased parental acceptance towards children when they are expressing anxious behaviors is positively correlated with a decrease in anxious behaviors of children. Parental acceptance is the act of displaying a warm and accepting affect towards children. When parents become critical of children's behaviors, children tend to become more anxious thus perpetuating the cycle of anxiety. According to Maid et al. (2008) parental acceptance is closely associated with parent-child attachment styles.

Mary Ainsworth and colleagues are famous for their research involving the assessment of patterns of attachment. Ainsworth posited that certain attachment patterns were sources of significant anxiety for children. She invented the Strange Situation (Ainsworth, Blehar, Walters & Wall, 1978) that assessed for children's attachment behaviors and quality of attachment relationship with the primary caregiver upon separation. The Strange Situation entails a twenty-minute laboratory experiment created to duplicate natural events of a child's life, set with eight different stages (Ainsworth et al., 1978). A child's behavior is observed under conditions of the mother being present with a lab technician, then the mother and child are left alone, and then a stranger enters, then the mother leaves followed by the stranger's departure and the mother reentering the room. The child is then observed alone then with the reintroduction of the stranger then the mother reenters the lab and the stranger exits. Ainsworth also conducted research with children and families in different cultures, giving more ecological credibility to her model of attachment style. What Ainsworth and colleagues discovered was that young

children with healthy attachments or *secure attachments* (Group B) would protest when their caregivers departed, but that upon reunion they would approach their caretakers eagerly. When the attachment figure (usually the mother) was present, children with secure attachments would explore their environment freely, touch base or approach closer proximity with their caregiver, then continue to explore their surroundings even when a stranger is present. Children with disordered attachment styles display a range of unsettling behaviors upon reunification with their primary attachment figure. Ainsworth et al. (1978) classified these children with *anxious-ambivalent* or *anxious-avoidant* insecure attachments.

Children with *anxious-avoidant attachments* (Group A) interact minimally with both strangers and their attachment figure. These children demonstrate minimal resistance or protest when the caregiver departs, and upon reunion they may initially seek proximity but then resist it. When alone with a stranger, children with anxious-avoidant attachments do not differentiate their behavior. They tend to be equally angry or passive towards strangers and their attachment figure and usually treat the attached figure no differently than they treat a stranger. In some circumstances, they may avoid the stranger less and are willing to be comforted by the stranger when distressed (Ainsworth et al., 1978).

Anxious-resistant attachment style (Group C) is characterized by extreme distress upon separation and respective ambivalence toward the attached figure upon reunion. Unlike children with secure attachments, children with anxious-ambivalent attachment

style will behave with anxiety and resistance around strangers even when the caregiver is present.

Disorganized/ disoriented infants (Group D) are the final classification of the quality of infant-parent attachment. It was formulated by Mary Main and associates (Main, Kaplan & Cassiday, 1985), and was based on Main's work with Ainsworth, during which they discovered a group of infants whose behaviors did not fit with the original three styles of attachment (Bretherton, 1992; Main et al., 1985). This group of infants seems confused about how to react to the Strange Situation. They do not particularly show distress with the departure or reunion with the mother, or much of a reaction to the stranger. Some display conflicting behavior configurations and slowed movements.

Mary Ainsworth did not identify the children belonging to Groups A, C, or D to be diagnosed with SAD or any other type of formal anxiety disorder. However, comparisons can easily be drawn, as secure attachments parallel a normal course of development in non-anxious children. It also typifies developmentally appropriate interactions between children and their primary attachment figure. Children with insecure attachments (children belonging to Groups A, C, or D) display anxiety-ridden behaviors that resemble symptoms of SAD. These behaviors include but are not limited to somatic, emotional, behavioral, and cognitive symptoms that readily interfere with daily functioning (Silverman & Dick-Niederhauser, 2004).

Parental modeling. Parental modeling involves the level to which coping strategies are outwardly demonstrated during anxiety provoking situations (Wood et al.,

2003). The process of parental modeling can play a significant role in the development of childhood anxiety disorders (Maid et al., 2008). If parents model the inability to cope with their own emotions or catastrophize their issues, children will observe these behaviors and be more apt to approach their own problems in a similar fashion (Maid et al., 2008). Similarly, if parents view children's problems as being unsolvable or show anxiety in relation to their children's issues, children will be unlikely to demonstrate effective coping skills as they observe parental modeling firsthand. Wood et al. (2003) suggests that children are less likely to develop adequate anxiety regulation skills when parents model poor coping strategies. Conversely, when parents do demonstrate adequate coping skills, children tend to follow suit (Whaley, Pinto & Sigman, 1999). This finding supports interventions related to working together with clinically anxious children and parents.

Child-Parent Interventions

In light of evidence that suggests that parental factors contribute to the magnitude of children's anxieties, it seems logical that child-parent interventions be considered as an intervention for children with anxiety disorders. Research also supports the integration of parents in child therapy as a means to better generalize skills from clinician's office to the home environment and for both the children and the parents to learn and practice better methods to cope with issues of anxiety that may be pervasive within the household. Child-parent interventions that are a subject of this review include Family Cognitive-Behavioral Therapy, parent-child interaction therapy, Child-Parent psychotherapy, and Theraplay®.

Family cognitive behavioral therapy. As previously stated, the most common parental factors that have been associated with the development and maintenance of childhood anxiety disorders involve parental control, acceptance, and modeling. Family Cognitive Behavioral Therapy (FCBT) can directly focus on these factors as well as other issues identified during the assessment process and throughout treatment. FCBT involves integrating cognitive-behavioral therapy in a family setting that includes parents and children. The family is seen as the most favorable setting for effecting change in children's irrational thoughts. Parents can facilitate new opportunities for their children to test distorted beliefs when at home and while jointly engaging in community activities (Barrett & Shortt, 2003). Parents also can model their own functional cognition and behaviors to their children during the treatment process as well as at home.

FCBT generally involves a treatment manual that guides the therapeutic process and helps family members recognize essential thoughts that are irrational and reframing them to more rational and productive types of beliefs. Usually treatment consists of a fixed number of sessions and is structured similarly from session to session. The structure differs depending on the manual used. For example, Kendall and Howard (1996) used the Coping Cat system (Flannery-Schroeder & Kendall, 1996) that was modified for families. It consisted of a total of 16 sessions. The foci include developing a coping plan, evaluating performance and administering self-reinforcement. The first eight sessions provide training to recognize anxious feelings and physical reactions to anxiety and to clarify feelings in anxiety-provoking situations. The remaining eight sessions entail the development of a coping plan to evaluate performance and to carry

out self-reinforcement. It is important to note that FCBT does not necessarily involve siblings or both parents but does require at least one parent and child.

Studies have been conducted comparing FCBT with individual child CBT and sometimes a waitlist control group. Results of these studies vary in terms of effectiveness of FCBT in comparison to individual child CBT for children with anxiety disorders. In a study conducted by Wood et al. 2006, 79% of children in the FCBT group were rated as being completely recovered versus 21% of the children in the child-focused cognitive behavioral therapy group. Bogels and Siqueland (2006) found similar outcomes at 12-month follow up with 71% of children in the FCBT group being considered to no longer have anxiety disorder, versus 0% of children in the waitlist control group. According to Wood et al. (2006) FCBT adds to the effectiveness of individual child CBT specific to teaching parents techniques that help children manage symptoms of anxiety. Spence, Donvoan and Brechman-Toussaint (2000) found that at 12-month follow up, both treatment groups consisting of individual CBT (58%) and CBT plus parent involvement (87.5%) retained their improvement in comparison to the waitlist control group (7%). The authors note that although there was a trend towards a superior outcome of CBT plus parental involvement, that the effects were not statistically significant in comparison to the CBT only group.

Bodden et al. (2008) and Barrett, Duffy, Dadds, and Rapee (2001) found no significant differences at follow-ups between the effectiveness of FCBT and individual child CBT. It is important to note that Bodden and colleagues' (2008) follow-up was conducted at three months post-treatment. Barrett and colleagues (1996) first found a

significant difference at the twelve-month follow-up with 95.6% of children receiving FCBT no longer meeting the criteria for an anxiety disorder. It was not until the six-year follow up that no significant differences were found between individual CBT and family CBT groups (Barrett et al., 2001). There are many variables that may account for the non-significant findings six-year post treatment such as maturation and different measures being used for some participants as their ages necessitated a change in forms (Barrett et al., 2001). Another possible variable is the fact that interviews at long-term follow-up were conducted only with children, whereas children and parent interviews were conducted for post-treatment, six-month and twelve-month follow-ups (Barrett et al., 2001). Further research is needed to investigate the disparities with the effectiveness of FCBT.

Parent-child interaction therapy. Parent-child interaction therapy (PCIT) integrates play therapy with developmental, social learning, and behavioral theories. It was originally developed for preschool aged children experiencing externalizing behavioral problems such as oppositional defiant disorder or attention deficit-hyperactivity disorder (Brinkmeyer & Eyberg, 2003; Herschell & McNeil, 2005). However, researchers have begun to investigate PCIT for other issues, including victims of physical abuse, children in foster care, developmental delays (Chaffin, Taylor, Wilson & Igelman, 2007; Hershell & McNeil, 2005), and separation anxiety disorder (Herschell & McNeil, 2005; Pincus, Eyeberg & Choate, 2005). Choate et al. (2005) recently piloted the use of PCIT for children with SAD and found that clinically significant changes in separation anxiety were observed across all measures and were maintained at three-

month follow-up (Choate et al., 2005). Another pilot study involving 10 children and their parents found that the severity of SAD decreased but clinical levels of SAD remained post-treatment (Pincus, Santucci, Ehrenrich & Eyberg, 2008).

Currently, a randomized clinical trial investigating the efficacy of PCIT for children aged four to eight with SAD is underway at Boston University's Center for Anxiety and Related Disorders. Preliminary data from the Clinician Severity Ratings (CSR) for a total of 34 children shows that children have marked improvement of SAD symptoms to non-clinical levels from pre- (CSR mean 5.54) to post-treatment (mean 2.80) compared to a waitlist control group (Pincus et al., 2008).

Similar to FCBT, the premise of PCIT for children with anxiety disorders is to effect change within the parent-child system. PCIT is typically conducted in two phases, child-directed and parent-directed. At the beginning of each component parents are taught specific skill sets based upon the needs of the family, which can involve discussion, examples, and role-playing (Herschell & McNeil, 2005). Each session involves a check-in with a review of skills already mastered, a discussion about homework, and a general conversation about progress or setbacks. Next the therapist observes and codes for the parent skill level for about five minutes. Parents are then coached for 30 minutes. Each session concludes with a checkout that consists of discussing progress and goals, and assigning homework for the week (Herschell & McNeil, 2005). Sessions last approximately 60 minutes. The number of sessions is dependent upon the needs and progress of the family.

The child-directed phase allows for the child to lead the parent in play. Parents are taught to ignore negative behaviors and avoid criticisms. Parents receive immediate and direct feedback from the clinicians via a "bug in the ear" device (Choate et al., 2005; Herschell & McNeil, 2005). Clinicians remain behind a two-way mirror observing and providing directives to the parent involved in treatment. Parents are taught to master providing attention to appropriate child behavior (e.g., sharing, good manners) and ignoring inappropriate behaviors such as whining or being aggressive (Herschell & McNeil, 2005).

The parent-directed phase involves parents acquiring the skills for giving effective feedback to children and disciplining appropriately in a given situation. Once these skills are mastered, parents are taught about managing house rules, difficult behavior, future behavioral problems, and knowing when to return for a "booster" session (Herschell & McNeil, 2005). Booster sessions including parent and child are indicated if behavior worsens, a new behavior emerges that parents are unsure how to handle, or if a parent needs extra support.

PCIT is designed to change behaviors in the parent and child together. Parents learn how to modify their own actions, hence modifying the reactions of their children. PCIT enhances the parent-child relationships by fostering healthy attachments, modifying reinforcement contingencies and reducing anxiety-provoking responses (Choate et al., 2005). Research on PCIT for anxiety disorders is very limited and only examines practice implications of SAD.

Family play interventions. It is necessary to include a section on psychodynamically-oriented family play models that are used in the treatment process for children with anxiety disorders. Although not readily quantifiable and lacking in empirical data, it is an entire branch of treatment that many clinicians practice regularly and find to work successfully. Family play therapy is a broad term used to identify play therapy conducted conjointly with at least one parent and child, i.e., the family. Family play involves the same over-arching principles as FCBT and PCIT, that parents and children receive treatment together in the same setting. However, it involves a non-manualized psychodynamic model of treatment and fewer directorships by the clinician. Family play interventions include child-parent psychotherapy and Theraplay®.

Child-parent psychotherapy. A model of family play therapy that has been researched and identified as an effective treatment for children with issues of attachment is child-parent psychotherapy (CPP) (Lieberman & Van Horn, 2005). CPP involves treatment of the parent-child unit using play as the primary medium of intervention. Play is considered one of the most effective forms of conducting therapy with younger children (Gil, 1994; Winnicott, 1989). During play, children naturally communicate their experiences and develop improved mastery over their fears and conflicts (Slade & Wolf, 1994). According to Winnicott (1989, pp. 59-61), the role of play includes (1) being *pleasurable*; (2) being a *symbol* for life and experiences; (3) an *achievement in individual growth* (4) being an "*imaginative elaboration* around bodily functions, relating to objects and anxiety"; (5) *creative activities;* (6) *products of play* such as trust,

safety, and enrichment; (7) *developments in socialization and trust in caretakers;* (8) *psychopathology of play* including anxieties and insecurities.

Alicia Lieberman and colleagues posit that by using play in conjoined sessions with child and parent, parental understanding of the child's inner experience will be increased as well as trust, reciprocity, and pleasure within the parent-child relationship (Lieberman & Inman, 2008). CPP involves the parent actively playing with the child in the therapeutic milieu. It is a relationship-based intervention that helps to change mutual reinforcement of negative behaviors and instead enhances emotional attunement (Lieberman & Van Horn, 2005).

The clinician does not actively participate in play but instead acts as an observer and provides feedback and interpretations of child behaviors to the parent. The clinician will facilitate the process and redirect and interrupt if necessary. The goal of the clinician is to help the child and parent become attuned and in-sync with one another by strengthening their attachment patterns and communicating more effectively (Lieberman & Inman, 2008). As previously discussed, anxiety can strain parent-child bonds and result in unhealthy relational dynamics. Since CPP is designed to help facilitate positive and healthy associations between parent and child, it is conjectured that it can also be helpful for children with anxiety disorders. Research needs to be conducted to lend efficacy for CPP as an intervention specifically for children with anxiety disorders.

Theraplay®. Theraplay® is a systematic procedure invented by Ann M. Jernberg in the 1960's as a method of increasing positive interactions between parent and child (Jernberg, 1979). She modeled Theraplay® after Winnicott's (1958) notion of being

"good enough mother." Jernberg (1979) postulated five dimensions present in mother-child interactions: structuring, challenging, engagement, nurturing, and play. She formulated Theraplay® after these dimensions with the premise that parent-child interactions can be therapeutic for a number of childhood disorders by fostering bonding, attunement, and playfulness (Jernberg, 1999; Wettig, Franke & Fjordbark, 2006).

According to Wettig et al. (2006), Theraplay® has shown effectiveness for children with symptoms of social anxiety, selective mutism, and shyness, as well as externalizing symptoms such as aggression or attention deficit-hyperactivity disorder. Wettig and colleagues (2006) conducted a controlled longitudinal study (CLS) from 1998-2005, n=60, and a multi-center study (MCS), n=291, from 2000-2004 involving toddlers and preschool aged children. The authors compared children with diagnosed speech and language disorders and severe behavior disorders with non-symptomatic children as well as a waitlist control group. In both studies, results were statistically significant in reducing symptoms of affective and anxiety disorders. Children in these studies included those that had *symptoms* of social anxiety disorder, selective mutism, and other internalizing symptoms but no definitive anxiety disorder diagnoses were reported. The authors report that more research needs to be conducted more specifically for individual disorders and to a broader age of children.

CHAPTER III

METHODOLOGY

Despite the growing body of literature available, child-parent based interventions for children with anxiety disorders have yet to be systematically reviewed and meta-analyzed by researchers. With anxiety disorders being the most commonly diagnosed mental disorder in childhood, and with a high likelihood that untreated symptoms will likely increase and persist into adulthood, it is imperative that the effectiveness of treatments be examined for positive effects. Systematically reviewing the child-parent research available and meta-analyzing the results can guide practice and areas for future research.

Systematic Review of the Literature

A systematic review of family interventions was conducted as a means to thoroughly examine the research and literature to date. According to Petticrew and Roberts (2006), a systematic review comprehensively identifies, appraises, and synthesizes all the relevant studies on a given topic. A systematic review is particularly pertinent to research in which there is uncertainty about the outcome of the effectiveness of an intervention.

Petticrew and Roberts (2006) discuss seven steps for a systematic review. These steps are (1) clearly define the research question or hypothesis; (2) determine the types of studies needed to carry out the study; (3) perform a comprehensive literature search

needed to locate the studies; (4) screen the studies located and assess if they meet the inclusionary criteria or if they require further analysis; (5) critically appraise the studies that will be included in the systematic review; (6) synthesize the studies and assess for homogeneity; and (7) disseminate the outcome of the review.

The systematic review has been written in accordance with the recommended protocol set forth by the Campbell Collaboration (2001). The Campbell Collaboration systematic review protocol is considered to be the most widely-used and recognized protocol for systematic reviews in the social sciences (Cooper & Hedges, 2009). The Campbell Collaboration protocol (2001) requires a cover sheet, background for the review, objectives of the review, methods, criteria for inclusion and exclusion of studies in the review, search strategy for identification of relevant studies, description of methods used in the component studies, criteria for determination of independent findings, details of study coding categories, statistical procedures, and conventions, treatment of qualitative research, timeframe, plans for updating the review, acknowledgments, statement concerning conflict of interest, references, and tables.

Problem Formulation

The problem being investigated by this study is to determine the effectiveness of child-parent interventions for children with anxiety disorders. Data generated from qualifying studies will be analyzed using a meta-analysis and will be disseminated into a distinct quantitative approximation (Cooper & Hedges, 2009; Lipsey & Wilson, 2001; Petticrew & Roberts, 2006). In addition, this study will also investigate which of the child-parent interventions are most effective. If there are variations in effect sizes, they

can be accounted for through different characteristics in the studies examined, such as age of child or treatment setting. The study will be guided by the following research question: Are direct child-parent interventions effective for children and adolescents with anxiety disorders?

Description of Methods Used in Primary Research

The most common methods used in child research are comparing the implementation of a given type of intervention on children against a comparable group of children without this type of intervention. Some studies included in this review are comparisons between two or more types of involvement in addition to a no-treatment group serving as a control. For example, a study was conducted by Bodden et al. (2008), where she and her team compared family cognitive-behavioral therapy to individual child-focused therapy and a wait-list control group.

Most studies that were located provide multiple measures of child-parent interactions, such as self-rating scales and assessment protocols, to measure pre- and post-treatment progress. These outcomes are usually treated as dependent variables. Independent variables usually include child and parental background characteristics, length of treatment, and frequency of involvement. For instance in a study conducted by Kendall, Hudson, Gosch, Flannery-Schroeder and Suveg (2008), the researchers used five different rating scales to assess for changes and post-test outcomes for the principal diagnosis, severity of condition, and coping abilities. The rating scales were administered to children, parents, and teachers (see Appendix A for outcome measures used in each study).

Criteria for Inclusion and Exclusion of Studies in the Review

The following criteria were used to determine whether a study would be included in the review for purposes of estimating the effects of child-parent interventions for children with anxiety disorders.

(1) Types of Studies: The meta-analysis included random controlled trials (RCT) and quasi-experimental designs (QED) as the primary studies for statistical analysis (Egger, Smith & Altman, 2001). Single-case and qualitative design studies were analyzed separately from RCT. Single-group case studies and exploratory designs were reviewed and discussed to help provide explanations for positive or negative outcomes, as well as provide a basis for future research (Littell et al., 2008).

(2) Types of participants: Children under the age of 18 with a primary diagnosis of generalized anxiety disorder, separation anxiety disorder, social anxiety disorder, social phobia, or specific phobia are included in this review, as well as their primary caretakers. Primary caretakers included in this study were biological parents. Children with a primary diagnosis of post-traumatic stress disorder or obsessive-compulsive disorder are excluded from this review.

(3) Types of settings: This review included children and their caretakers residing in the United States as well as internationally. Only children residing in the homes of their primary caretakers were included in this review.

(4) Types of intervention: The review includes children engaged in various forms of child-parent interaction therapy including family cognitive behavioral therapy and attachment-based family cognitive behavioral therapy. This review excluded children

whose parents or primary caretakers are not directly involved in the treatment, such as parent psycho-education and parent training. However, studies that involve psycho-education and parent training in addition to the direct involvement of parents in child-parent treatment were included.

(5) Types of outcomes measures: This review includes studies that measure the effectiveness of parent-child interaction therapies for children with anxiety disorders. Outcome measures included are self-report outcomes and formal assessment outcomes (that have been researched for favorable validity and reliability) such as behavioral, psychological, and mental health status. Pre- and post-intervention comparisons of DSM-IV-T-R (APA, 2000) diagnosis of anxiety disorders were also included.

Studies were included if the outcomes measured provide sufficient information to calculate effect sizes. In a few cases, insufficient data were found and authors of the studies were contacted for further information. Studies with insufficient information were included in the review but excluded from the analysis (Lipsey & Wilson, 2001).

(6) Geographical context: This review included studies conducted in other countries, as the prevalence of anxiety disorders affects up to 20% of the population (Langley et al., 2002) and is associated with serious mental disorders and comorbidity in adulthood (Albano et al., 2003; Flannery-Schroeder et al., 2005; Greco & Morris, 2004; Hirshfield-Becker & Biederman, 2002; In-Albon & Schneider, 2007; Langley et al., 2002, Ollendick et al., 2004,). Due to limited resources, this review is limited to articles written in English.

(7) Timeframe of field trials: Studies that were conducted between 1980 and 2009 will be included in the review.

Search Strategy for Identification of Relevant Studies

Literature search. It is important in systematic reviews and meta-analyses that the literature search be approached systematically in an effort to exhaust both published and unpublished research. According to Lipsey and Wilson (2001), the exclusion of searching and including will likely to lead to an upward bias in effect sizes. An exhaustive search for studies and research were searched using a combination of the keywords "anxiety disorders", "family therapy", "childhood anxiety", "family treatment", "randomized", "experimental", "quasi-experimental", "clinical", and "intervention."

Electronic databases. The electronic databases searched included PsychINFO, Proquest (for unpublished dissertations), Dissertations and Abstracts, Academic Search Premier, Social Work Abstracts, Pub Med, and Medline (last search performed November 2009).

Personal contacts. Lipsey and Wilson (2001) recommend that professional associations and professionals in the field of study be contacted as potential sources of fugitive data. In accordance with those recommendations, Theraplay® Institute and the American Association for Marriage and Family Therapy were contacted for information pertaining to conference presentations as well as other leads for published and unpublished work and for assistance in locating research conducted internationally. Conference presentations and unpublished research was sought out by emailing first authors requesting additional studies.

Hand searching. The *Journal of Marital and Family Therapy* (publication dates 1998-2009), the *Journal of the American Association of Child and Adolescent Psychiatry* (publication dates 1994-2009), The *American Journal of Orthopsychiatry* (publication dates 1998-2009), and *Psychiatric Services* journal (publication dates 1998-2009) were hand-searched as they were likely to contain information relevant to the population under investigation (children and adolescents), were known to contain information relevant to the disorder under investigation (anxiety disorders) and in an attempt to locate an international cross-section of studies.

Internet searching. Keyword searches (as stated above) were conducted using googlescholar.com, google.com and yahoo.com. Websites such as The National Institute of Mental Health, Yale Child Study Center, Zero to Three, American Association of Pediatrics, American Academy of Child and Adolescent Psychiatry, Anxiety Disorders Association of America, and the Association of Marriage and Family Therapy were searched for research and professional contacts.

Reference lists. Reference lists of studies found relevant for this review as well as related studies and meta-analyses were examined for sources of further relevant data.

Conducting and Documenting the Search and Selection Process

A detailed search account of data collection procedures and storage of records was maintained to keep track of all searches including (1) Time periods searched; (2) Databases utilized; (3) search engines searched; (4) number of hits; (5) amount of time searching; (6) key words used; (7) professionals contacted; and (8) professional organizations contacted. Studies were located primarily through the Loyola University of

Chicago library system and were saved in an electronic folder. When electronic versions were not available, hard copies were made and kept in a designated file.

Inclusionary decisions made were documented throughout the reviewing and screening process based on the target population and corresponding intervention. The appraisal of study quality and information needed for analysis was coded using a coding form. Coding was also conducted for the analysis of program effects for the total sample, for key subgroups and for the various intervention types, e.g. family cognitive behavioral therapy, family play therapy, parent-child interaction therapy, etc.

Criteria for Determination of Independent Findings

According to Campbell Collaboration (2001), when a single evaluation of effectiveness provides data on multiple outcome measures, an explanation of the criteria used is necessary to determine whether those outcomes are from independent data or from the same or related data. This can occur when many types of outcomes measured within the same study are overlapping samples, or when outcomes are measured at multiple points in time. In these situations, the outcome measures are assessed on the identical sample of participants and are not independent estimates of intervention or treatment effect (Campbell Collaboration, 2001).

In this review, some studies included multiple outcome measures to assess for an anxiety disorder diagnosis. In these instances only one treatment and/or control comparison was included in the meta-analysis. The most appropriate measures were included in situations where both treatments are within the same subgroup and are widely considered to yield the most reliable data (Lipsey & Wilson, 2001; Littell et al., 2008;

Petticrew & Roberts, 2006). The outcome measures selected are listed in Appendix A, under Outcome Measure and are denoted with an asterisk.

Details of study coding categories. Coding took place for all studies meeting the inclusionary criteria. The coding instrument included categories concerning all relevant bibliographic information, the studies' design, the studies' intervention criteria, the studies' inclusionary and exclusionary criteria, the follow-ups of the participants in the studies, type(s) of intervention, type(s) of anxiety disorders, age group examined, primary goal of intervention, statistical methods employed, and all outcome data (Lipsey & Wilson, 2001). In addition, unique information about the study was also included.

To ensure reliability of coding procedures, a trained graduated student who was not involved in this research coded 100% of the studies. Inter-rater agreement was assessed when this researcher coded a random sample of 20% of the studies. There was only a 2% disparity between the two coders. These differences were resolved with conferring about the items in question. If more than a 10% discrepancy existed between the two coders in the random sample, the remaining 80% of studies would have been recoded by a third coder and all discrepancies in coding design would have been resolved.

Statistical Procedures and Conventions

Statistical procedures and conventions are comprised of effect size computation, provisions for missing data, subgroup and moderating analysis, sensitivity analysis, assessing heterogeneity, publication bias, and discussion of software used to compute data in the review and analysis (see below for detailed information).

Effect size computation. In basic terms, an effect size can be described as a number that encodes the magnitude of the relationship between two variables (Cooper & Hedges, 2009). It is considered to be best practices to describe effect sizes in all quantitative research. In meta-analysis, effect size computation is considered to be the heart of the study as it determines the core findings from the studies of interest (Borenstein, 2009). It is important to examine effect sizes, as they describe the level of effectiveness of the studies in question. The effect size computation was largely dependent upon three key factors: (1) the measures of the outcome variables; (2) the designs of studies being reviewed; and (3) the statistical analyses that have been reported (Lipsey & Wilson, 2001). The primary metric for the calculation of effect sizes in this review is Hedges' *g,* as it has a built-in correction for bias for small sample sizes (Borenstein et al., 2009; Cooper & Hedges, 2009).

Standardized mean difference, or the *d*-index, is an effect size that expresses the difference between the means of two groups, particularly between a dichotomous group and a continuous group variable (Card, in press; Cooper & Hedges, 2009). Computing the *d*-index is most appropriate for studies that report mean and standard deviation for the treated and control groups (Borenstein, 2009). Hedges and Olkin (1985) posit that computing a weighted average is the best procedure to average independent *d*s. Across all studies, the mean effect size is computed as a weighted mean, whereby the weights are equal to the effect size of each study. Greater weight is given to studies with less random variations as well as those with larger sample sizes.

For studies reporting *t*, *F*, or *p* value statistics, conversion formulas such as Hedges' *g* and Cohen's *d* will be used to calculate the standardized mean difference for the effect size estimate. All effect sizes were calculated using a 95% confidence interval (Rosenthal, 1994).

According to Card (in press) Hedges' *g* and Cohen's *d* can be computed using the formulas below with *M1* and *M2* representing the means of group 1 and group 2, respectively, *s pooled* delineating the pooled estimate of the population standard deviation and *sd pooled* defining the pooled sample standard deviation. When appropriate, effect sizes will be pooled and averaged (Petticrew & Roberts, 2006). Pooling effect sizes involves combining mean effect sizes across studies to compute an average (Littell et al., 2008).

Hedges' g: $g = \frac{M_1 - M_2}{s_{pooled}}$

Cohen's d: $d = \frac{M_1 - M_2}{sd_{pooled}}$

Hedges's *g* uses the pooled estimate of the population standard deviation, which can be calculated with $s = \sqrt{(x_i - \bar{x})^2 / (n-1)}$

Cohen's *d* arrives at the pooled sample standard deviation with $sd = \sqrt{(x_i - \bar{x})^2 / n}$

All effect sizes are converted to Hedges' *g* via CMA software (Version 2), which automatically corrects for small sample bias. A forest plot will be used to depict effect sizes from each study, as well as data produced by the meta-analysis (Petticrew & Roberts, 2006).

Missing data. In the event of missing data, the lead reviewer makes every attempt to contact the authors of the studies to account for the missing information (Littell et al., 2008). If no response is received from the authors, then the studies is eliminated from the meta-analysis but may be retained for discussion.

Subgroup and moderator analysis. Within a systematic review and meta-analysis, it is recommended by the Campbell Collaboration (2001) that the appropriateness of subgroup and moderator analysis be considered. A subgroup analysis is the process of estimating effects for certain populations that exist within a study. A moderator analysis involves directly testing "the differences between subgroups and influences of variables or moderators on the mean effect" (Littell et al., 2008, p. 120). A moderator analysis can be used to explore possible sources of heterogeneity in combined effects. However, when conducting a moderator analysis, ten studies for each moderator is recommended to be included in the analysis. Since there are less than 10 studies in this review, a moderator analysis will be considered if heterogeneity has been established. In the case of heterogeneity, the moderating variables then need to be decided upon and limited to the central question of the meta-analysis (Littell et al., 2008). It is important to note that differences between variables cannot be accounted as evidence of causal associations between groups and the level of influence of the intervention (Littell et al., 2008). Rather, the conclusions may offer support for hypotheses regarding the effectiveness of the interventions that could be further researched in future studies.

Sensitivity analysis. A sensitivity analysis is a process in which the researcher attempts to test the robustness of the results of a data analysis. It is important that factors

such as study design, attrition, missing data, type of treatment, source of research examined and sample size be considered as potentially biasing the results of the study. Outliers such as extreme sample sizes or high or low effect size are other offenders leading to skewed results. Use of funnel plots will be utilized to assess relationships between effect size and study execution. If no bias exists, the funnel plot will appear mostly symmetrical. If relationships are found to exist, the studies will be further examined for possible explanations, such as associations between sample size and rigor of methodologies.

Assessing heterogeneity. Heterogeneity is the degree to which effect sizes differ from one another (Peticrew & Roberts, 2006). In meta-analysis, it is necessary to employ statistical tests to assess whether the inconsistency in observed effect sizes is greater than would be expected by chance. If so, then the observed effects are said to be heterogeneous. In contrast, homogeneity is when variability in observed effect sizes is not greater than it would be expected given chance or sampling error.

To determine whether statistical heterogeneity is greater than it would be by chance, the lead reviewer will carry out a chi-squared test of the hypothesis of homogeneity of effects using Cochrane's *Q* statistic to assess if the effects are equal (Kulinskaya et al., 2008), via CMA software [Version 2]. Cochrane's *Q* statistic tests a difference in effects among two or more treatments applied to the same set of experimental components (Borenstein, 2009). If the null hypothesis fails to be rejected, then the estimate *Q* values will have approximately a chi-squared *x2* distribution with degrees of freedom equal to the number of studies minus one, *k*-1. If the *Q* statistic is

significant, we can suppose that heterogeneity exists. If the Q is found to be statistically non-significant, it is safe to estimate that effect sizes are homogeneous, deeming a moderator analysis unnecessary.

Random effects models are used due to considerable diversity among the types of child-parent interventions (Lipsey & Wilson, 2001). Random effects models is a method for combining effect sizes under which observed effect sizes may differ from each other, because of both sampling error and true variability in population parameters (Cooper & Hedges, 2009). The researcher anticipated that data synthesis of this study would likely be based upon random effects model and that this will allow the application of inferences of effect sizes to the population under study, children with anxiety disorders.

Publication bias. A funnel plot will be created to ascertain whether or not publication bias had any impact on the observed effect and to ascertain what the effect size would have been in the absence of bias. According to Borenstein and colleagues (2009) the impact of bias is probably trivial if, when all the relevant studies were included the effect size remains unchanged. The impact of bias is modest if the effect size shifts but the key findings remain primarily unchanged. The impact of bias is substantial if all the relevant studies were included and the effect size or key findings could change.

Software. Comprehensive Meta-analysis (CMA) [Version 2] was used to compute Hedges' *g* effect sizes as well as compute statistical information such *p*-values, *t*-scores, *Q* statistics and confidence intervals. Funnel plots and stem and leaf graphs were also created utilizing this software. Other variables are described and formatted in a table

using MS Word, including age, location of setting, time spent in intervention, types of interventions, etc.

Treatment of Qualitative Research

Qualitative data is included in the study in an effort to help define parent-child interaction therapy and the different types of anxiety disorders. It was also used to help to formulate appropriate research questions and to explain the outcomes of the quantitative research outcomes. Qualitative research included in the study was subjected to the same rigor as the quantitative data, including provisions for inclusionary and exclusionary criteria, and methods used in the research (Petticrew & Roberts, 2006).

CHAPTER FOUR

RESULTS

This chapter presents findings on 710 children and adolescents who were participants in eight individual randomized controlled trials (RCT) with the intended outcome of establishing the effectiveness of child-parent interventions for children and adolescents with diagnosed anxiety disorders. The first section of this chapter describes the studies included in the meta-analysis and the second section discusses the results of the meta-analysis. The last section of the chapter discusses publication bias relative to this review.

Meta-Analysis Studies

Research Designs

Eighteen studies met the primary inclusionary criteria of including children or adolescents with a diagnosed anxiety disorder with direct child-parent treatment being a treatment intervention. Of these studies, ten (55%) did not qualify for the meta-analysis. Six (60%) of the disqualifying studies were excluded, as they were single group pre-post test designs. Two (20%) of studies were long-term follow-ups to studies included in the meta-analysis and will be discussed in Chapter Five. The remaining two (20%) studies were not included in the meta-analysis due to insufficient statistical information needed to compute effect sizes. The authors were contacted to obtain the necessary information but no replies were received. Of the eight studies retained for the meta-analysis, one was

an unpublished dissertation (12.5%) and seven were published in professional journals (87.5%). Appendix A depicts information for the studies that were considered for this review and Table 1 provides detailed information on the studies included in this review.

Table 1. Detailed Study Information

Barrett et al., 1996 Study Information		
Country		Australia
Treatment Professionals		Psychologists 100% (5)
Participants		Percentage (n)
Total		79
Females		43% (34)
Males		60% (45)
Ethnicity		-
Medication		Excluded
Primary Anxiety Disorder		
GAD/ Over-anxious disorder (DSM-III-R)		38% (30)
SAD		38% (30)
Social Phobia		25% (19)
Comorbid Disorder		
Depression		6%
Specific (Simple) Phobia		22%
Oppositional Defiant Disorder		2%
Anxiety Disorder diagnosis no longer present at post-treatment		69.8% (37)
CBT+Family		84% (25)
CBT		57.1% (16)
WLC		26% (6)
Follow-up		
	6 month	12 month
CBT+Family	84% (21)	95.6% (22)
CBT	71.4% (20)	70.3% (19)
WLC	-	-

Table 1 (continued)

Bodden et al., 2008 Study Information		
Country		The Netherlands
Treatment Professionals:		
Psychotherapists (-)		
Behavior Therapist (-)		
Health Care Psychologist (-)		
Participants		Percentage (n)
Total		128
Females		59.3% (76)
Males		40.6% (52)
Ethnicity	Caucasion/White	98% (126)
	Other	2% (2)
Medication		Included* (-)
Primary Anxiety Disorder		
	Social Phobia	32% (41)
	SAD	27% (34)
	GAD	18% (23)
	Specific Phobia	16% (21)
	Panic Disorder	7% (9)
Comorbid Disorder		
	Social Phobia	35% (45)
	SAD	16% (21)
	GAD	35% (45)
	Specific Phobia	42% (54)
	Panic Disorder	16% (20)
	Dysthymia	16% (20)
	ADHD	8% (10)
	PTSD	6% (8)
	DD	6% (8)
	OCD	5% (6)
	CD	2% (2)
	ODD	1% (1)
Anxiety Disorder diagnosis no longer present at post-treatment		
	Overall	41% (52)
	FCBT	33% (17)
	CBT	55% (34)
	WLC	0% (25)

Table 1 (continued)

Kendall et al., 2008 Study Information		
Country		USA
Treatment Professionals		
Doctoral Students (-)		
Masters level clinicians (-)		
Psychologists (-)		
Participants		Percentage (n)
Total		161
Females		44% (71)
Males		56% (90)
Ethnicity		
Caucasian		85% (137)
African-American		9% (14)
Hispanic		3% (5)
Other/Mixed		3% (5)
Medication		Excluded
Primary Anxiety Disorder		
GAD		54% (88)
SAD		29% (47)
Social Phobia		39% (63)
Comorbid Disorder		
GAD		24%
SAD		32%
Social Phobia		37%
Simple Phobia		53%
ADHD		32%
ODD		14%
Dysthymia		6%
MDD		5%
Anxiety Disorder diagnosis no longer present at post-treatment		
Overall		69.8%
FCBT		64%
ICBT		64%
FESA		42%
Follow-up	12 month	
FCBT	64%	
ICBT	67%	
FESA	46%	

Table 1 (continued)

Mendlowitz et al., 1999 Study Information	
Country	Canada
Treatment Professionals	
Doctoral Students 20% (1)	
Psychiatrists 60% (3)	
Child-youth worker 20% (1)	
Participants	Percentage (n)
Total	68
Females	44% (39)
Males	56% (29)
Ethnicity	(-)
Medication	3% (2)
Primary Anxiety Disorder	1 or more DSM-IV Anxiety
Disorder†	
Comorbid Disorder	
Depression	(-)
Anxiety Disorder diagnosis no longer present at post-treatment	n=62
Overall	(-)
FCBT	(-)
ICBT	(-)
Parent-Only	42%
Follow-up	None

Table 1 (continued)

Moreno 2007 Study Information		
Country		USA
Treatment Professionals		
Doctoral Students	89% (8)	
Psychologist	12.5% (1)	
Research Assistants	(-)	
		Percentage (n)
		n=143
Females		44% (64)
Males		56% (79)
Ethnicity		
Caucasian/Euro-American		21% (30)
Hispanic/Latino		73% (105)
African-American		3% (5)
Other/Mixed		2% (3)
Medication		8% (11)
Primary Anxiety Disorder		
SAD		42% (60)
Social Phobia		25% (36)
Specific Phobia		15% (22)
GAD		14% (20)
PD with Agoraphobia		2% (3)
PD with out Agoraphobia		1% (2)
Comorbid Disorder		69% overall
Social Phobia		12.4%
GAD		12.4%
SAD		10%
Specific Phobia		8.3%
ODD		4.1%
MDD		4.1%
Dysthymia		3.4%
PD with agoraphobia		1.4%
Enuresis		1.4%
Selective Mutism		0.7%
Anxiety Disorder diagnosis no longer present at post-treatment		
Overall		77.9%
FCBT		84.6%
GCBT		71.2%
Follow-up		None

Table 1 (continued)

Siqueland et al., 2004 Study Information		
Country		USA
Treatment Professionals		
Psychologists 71.4 % (5)		
Social Worker 14.3% (1)		
Family Therapist 14.3% (1)		
Participants		Percentage (n)
Total		11
Females		27% (3)
Males		73% (8)
Ethnicity		
Caucasian		91% (10)
African-American		9% (1)
Medication		Included (-)*
Primary Anxiety Disorder		
GAD		91% (10)
SAD		9% (1)
Comorbid Disorder		
MDD		36%
School Refusal		27%
Social Phobia		18%
Simple Phobia		9%
Panic Disorder		9%
Anxiety Disorder diagnosis no longer present at post-treatment		
Overall		53.5%
CBT+ABFT		40%**
ICBT		67% **
Follow-up		
	6 month	
CBT+ABFT	80%**	
ICBT	100%**	

* Data not available

** Data for the primary diagnosis was specified in the study

Table 1 (continued)

Spence al., 2000 Study Information	
Country	Australia
Treatment Professionals	
Psychologists 100% (2)	
Participants	Percentage (n)
Total	50
Females	38% (19)
Males	62% (31)
Ethnicity	(-)
Medication	Excluded
Primary Anxiety Disorder	
Social Phobia	100% (50)
Comorbid Disorder	
Simple Phobia	26% (13)
SAD	18% (9)
GAD	10% (5)
ADHD	4% (2)
ODD	8% (4)
Dysthymia	8% (4)
Anxiety Disorder (Social Phobia) diagnosis no longer present at post-treatment	
Overall	50.83%
Treatment Groups Overall	72.75%
PI	87.5%
PNI	58%
WLC	7%
Follow-up	12 month
PI	81%
PNI	53%
WLC	(-)

Table 1 (continued)

Wood et al., 2006 Study Information	
Country	USA
Treatment Professionals	
Doctoral Students 90% (9)	
Psychologist 10% (1)	
Participants	Percentage (n)
Total	40
Females	43% (17)
Males	33% (13)
Ethnicity	
Caucasian	62% (24)
Hispanic/Latino	10% (4)
African-American	3% (1)
Asian/Pacific Islander	3% (1)
Mixed/other	23%(9)
Medication	10% (4)
Primary Anxiety Disorder	
SAD	67.5% (27)
Social Phobia	50% (20)
GAD	27.5%(11)
Simple Phobia	12.5% (3)
OCD	10% (2)
Comorbid Disorder	
ADHD	12.5 (5)
Dysthymia/MDD	10% (4)
Selective Mutism	7.5% (3)
Anxiety Disorder diagnosis no longer present at post-treatment	
Overall	65.75%
FCBT	78.9%
CCBT	52.6%
Follow-up	None

Participants

There were a total of eight studies and 710 participants (440 complete data) included in this review. Participants in this study included children and adolescents with a diagnosed anxiety disorder and at least one parent. The mean sample size was 55

participants per study with a range of 11 to 111 participants per study. The age of participants ranged from 4 to 17 years, with males representing 52% (n=347) of the total sample and females representing 48% (n=323).

Table 2 details the following family demographic information. Approximately 460 (91%) mothers participated in the studies and 249 (38%) fathers. Three studies were not specific as to which parent(s) participated. There were a reported 323 Caucasian participants (68%), 21 African-Americans (4%), 114 Latinos (24%), 1 Asian/Pacific Islander (less than 1%) and 19 participants with other/mixed ethnicity (4%). Three (36%) studies did not report ethnicity. Of the five studies that reported on socioeconomic status, middle to upper class families represented 87% of the participants. 13% of the participants had below middle class socioeconomic status.

As Table 3 illustrates, 229 (34%) participants were primarily diagnosed with social phobia, the most common primary diagnosis in this review. Separation anxiety disorder (SAD) is the second most common primary diagnosis with 199 (30%) participants being diagnosed. One hundred and eighty-two (27%) participants were diagnosed with generalized anxiety disorder (GAD). These three primary anxiety disorders comprise approximately 91% of the total primary diagnoses.

Table 2. Family Demographic Information

Study	**Parent Participating**	**(N) Parent Participating**	**(N) Parents with anxiety**	**Siblings Participating**	**Socio-economic status**
Barrett, 1999	Mothers	100% (25)	-	-	-
Bodden, 2008	Mothers Fathers	98% (126) 91% (117)	39% (5)*	82% (130)	-
Kendall, 2008	Mothers Fathers	57% (161) 41% (129)	37.9%(61) 18.6%(24)	-	Below MC 11% Above MC 89%
Mendlowitz, 1999	†	18**	-	-	≈MC
Moreno, 2007	Mothers	100% (143)	-	-	Below MC 42% MC and above 58%
Siqueland, 2004	Mothers Fathers	100% (5) 60% (3)	-	-	-
Spence, 2000	†	19**	-	-	-
Wood, 2006	"Primary parent"	40**	-	-	≈MC

Notes:
- no data available
*parental gender not specified
**represents total sample in child-family treatment group where other approximations were not reported
† not reported
≈ approximation as stated by authors

Approximately 83% of those participants with secondary diagnoses were diagnosed with another anxiety disorder. Specific Phobia was the most common secondary diagnosis, occurring in approximately 42% (n=160) of participants with secondary diagnoses. One hundred and two (15%) participants were diagnosed with social phobia and 81 (12%) participants met the criteria for secondary diagnoses of GAD. SAD represented 16% of the secondary diagnoses. Depression, including Dysthymia and

Major Depressive Disorder, comprised approximately 12% of the secondary diagnoses. ADHD represented 8% (n=57) of the secondary diagnoses, PTSD 6% (n=6), OCD 5% (n=5), Conduct Disorder 2% (n=2) and Oppositional Defiant Disorder 2% (n=2). Other less common secondary diagnoses (represented by less than 1% of the population) included PTSD (n=6), Selective Mutism (n=8), Conduct Disorder (CD) (n= 2), and Enuresis (n=1).

Table 3. Diagnoses

Diagnoses	**Primary Anxiety Disorder (n=7)**	**Secondary Anxiety Disorder (n=7)**
Social Phobia	34% (229)	15% (102)
SAD	30% (199)	11% (76)
GAD	27% (182)	12% (81)
Specific Disorder	7% (46)	23% 160
Panic Disorder	2% (14)	4% (26)
OCD		<1% (5)
ADHD		8% (57)
MDD		7% (51)
Dysthymia		5% (35)
School Refusal		4% (27)
ODD		2% (2)
*Depression		2% (16)
Selective Mutism		<1% (8)
PTSD		<1% (6)
CD		<1% (2)
Enuresis		<1% (1)

Notes:
* type of depression not specified
† not a DSM-IV diagnosis

To demonstrate rigorous study designs, some authors included in this review used more than one measure to assess for anxiety. However, in an effort to maintain statistical independence, one effect size per study was calculated. According to Lipsey and Wilson

(2001), it is important that the selection of data included be based on set criteria. In this review, when studies had more than one measure of anxiety, the measures that were selected were first based on those that are considered to be reliable and valid results, based on prior research data discussed in each of the studies. Next, measures were then selected based on available data. If data was incomplete, efforts were made to contact the authors for the missing data. Finally, efforts were made to use the same outcome measure as much as possible to increase reliability and validity in this analysis. Measures assessed for effect sizes in this review include the Anxiety Disorders Interview Schedule for Children (ADIS-C/P) (Silverman & Albano, 1996) (*n*=3, 37.5%), Revised Measure of the Children's Manifest Scale (RCMAS) (Reynolds & Richmond, 1978) (*n*=3, 37.5%), Multidimensional Anxiety Scale for Children (MASC) (March, Parker, Sullivan, Stallings & Conners, 1997) (*n*=1, 12.5%), and the Hamilton Anxiety Rating Scale (HAM-A) (Hamilton, 1959) (*n*=1, 12.5%). Table 1 highlights the measures that were included in this review.

Setting

Table 4 shows a breakdown of the settings included in this review. It is interesting to note that studies were executed in three different continents, including North America (*n*=5), Australia (*n*=2) and Europe (*n*=1). More specifically, four (50%) studies were conducted in the United States, two (25%) in Australia, one (12.5%) in Canada, and one (12.5%) in the Netherlands. Eighty-seven percent (87.5%) (*n*=7) of the studies were conducted in a clinic and 12.5% (*n*=1) in a hospital. The mean number of sessions across

all studies was 14, with a range of 12 to 16 sessions. Sessions across all studies ranged from 60 to 90 minutes per session.

Table 4. Study Settings

Setting	**N=8**
USA	50% (4)
Australia	25% (2)
Canada	12.5% (1)
The Netherlands	12.5% (1)
Clinic	87.5% (7)
Hospital	12.5% (1)

Treatment Fidelity

All studies included in this review used a treatment manual. Although Coping Cat (Kendall & Hedtke, 2006) was only used in 12.5% of the studies (*n*=1), 37.5% (*n*=3) of studies used a declared derivative of Coping Cat, including Bodden et al. (2008) (name of manual not provided), "Coping Koala" (Barrett, Dadds & Rapee, 1991) (*n*=1, 12.5%), and "Coping Bear" (Mendlowitz & Scapillato, 1996) (*n*=1, 12.5%). Moreno used a manual developed by researchers (*n*=1, 12.5%), and Wood et al. (2006) used the "Building Confidence Program" (*n*=1, 12.5%) which was developed for their study.

All studies used at least one doctoral level therapist or psychiatrist to provide treatment, as listed in Table 5 below. Other treatment personnel included doctoral students in five (50%) studies, one social worker, eight research assistants (in a single study), one family therapist, one youth care worker, and other unspecified master's and doctoral-level clinicians. Six studies used a combination of trained clinicians.

Table 5. Treatment Providers

Treatment Providers	**n=8**
Psychologists	87.5% (7)
Doctoral Students	50% (4)
Social Worker	12.5% (1)
Psychiatrists	12.5% (1)
Other	62.5% (5)

Meta-Analysis Results

Individual effect sizes were calculated for each study using Hedges' *g* via Comprehensive Meta-Analysis software (CMA) [Version 2]. The pretest and posttest scores for each study were entered into the software and Hedges' *g* was selected as the effect size statistic, as it allows for bias correction for a small sample size. The random effects model was selected a priori, as it allows for variation of the different effect sizes in each study (Borenstein, Hedges, Higgins & Rothstein, 2009). According to M. Borenstein (personal communication, July 15, 2010), selecting the type of effects model a priori is considered best practices, and it is a common mistake to first use a fixed-effects model and move to random effects if the test for heterogeneity is significant.

The random effects model was selected as it allows for the difference in the observed effect sizes due to both sampling error and true variability in population parameters (Cooper & Hedges, 2009). Factors varying from study to study include age, primary diagnosis, gender, outcome measures, sample size, as well as other variables that are dependent upon the resources of the interventions. These factors lead to variations in

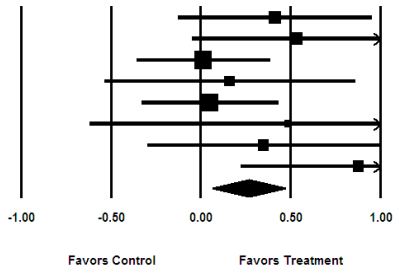
the magnitude of the effect and an estimation of the mean of a distribution of effects; a random effects model was therefore considered to be most appropriate (Borenstein et al., 2009).

Table 6 shows effect sizes across eight treatment studies at post treatment and a corresponding forest plot visually depicting the effect sizes and weight of each of the studies. The size of the squares on the plot indicate the weight assigned to the study based on sample size, with a smaller square representing smaller weights and a larger square representing larger weights. The closer the squares are to the right side of the plot, the larger and hence more statistically significant the effect size. The effect sizes were calculated for each study using CMA software [Version 2]. Means, standard deviations, and sample sizes for each outcome measure included were entered into the software. An overall mean effect size was generated using continuous data for unmatched, post data for each study. The standardized mean difference was calculated with the Hedges' *g* correction for small size bias, resulting in the overall effect size of 0.263 (*SE*= 0.103, 95% CI= 0.062 to 0.465).

It is interesting to note that Wood and colleagues' (2006) study was the only study with statistical significance and a large effect size. It favored direct child-parent interventions as indicated by a confidence interval not overlapping with zero. Statistical significance indicates substantial differences in the treatment effect between the experimental and control groups. The remainder of the studies did not demonstrate statistical significance. However, the remaining studies demonstrated positive effect sizes that were greater than zero.

Table 6. Post-Treatment Data

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value	Child-Parent	Control
Barrett 1996	0.412	0.274	0.075	-0.125	0.949	1.503	0.133	28	25
Bodden 2008	0.534	0.297	0.088	-0.048	1.117	1.797	0.072	17	34
Kendall 2008	0.013	0.189	0.036	-0.356	0.383	0.071	0.943	56	55
Mendlowitz 1999	0.160	0.355	0.126	-0.536	0.856	0.450	0.652	18	13
Moreno 2007	0.051	0.195	0.038	-0.331	0.432	0.261	0.794	52	52
Siqueland 2004	0.483	0.563	0.317	-0.620	1.587	0.859	0.391	5	6
Spence 2000	0.347	0.329	0.108	-0.298	0.991	1.053	0.292	19	17
Wood 2006	0.875	0.333	0.111	0.222	1.528	2.628	0.009	19	19
	0.263	0.103	0.011	0.062	0.465	2.562	0.010		



Meta Analysis

The *z*-value was also computed using the overall mean effect size data, resulting in a statistically significant effect size (z=2.562, p=0.010). According to Cohen (1988), the effect size of 0.263 is a small, positive effect size due to the significant *z* score. Effect sizes are positive if the mean difference is in the predicted direction (M. Borenstein, personal communication, July 15, 2010). An effect size of 0.263 indicates that the average treatment group scored .26 standard deviations higher than the average control group on all measures of anxiety. The confidence interval signifies a 95% chance that the true population value falls between the lower and upper limits of 0.062 to 0.465, respectively. The standard error (*SE*) signifies the amount of confidence we have in the effect size (Borenstein et al., 2009). In other words, the effect size of 0.263 is plus or minus 0.103. The variance of 0.011 is the measure of the mean squared deviation from the mean effect. A test of homogeneity was conducted to assess the variance of true effect

sizes using the *Q* statistic, a measure of weighted standard deviations. In this case the *Q* statistic is not significant (Q=7.728, df=7, p=.357) and any variance in effect sizes can be confidently attributed to sampling error, indicating homogeneity (Borenstein et al., 2009). Table 7 summarizes the post-treatment test for homogeneity using the random effects model.

Table 7. Post-Treatment Test for Homogeneity Using Random Effects Model

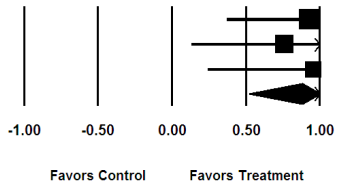
N	**Effect Size**	**Standard Errot**	**Variance**	**Lower Limit**	**Upper Limit**	**Z**	**P**	**Q**	***df*(Q)**	**P**
8	0.263	0.103	0.011	0.062	0.465	2.562	0.010	7.728	7	0.357

Waitlist Control

Three studies included a wait-list control group and were compared to the post-treatment data for the relative effectiveness of child-parent interventions. The results were calculated using the random effects model and the Hedges' *g* mean effect size via CMA software [Version 2]. Large, positive effects were demonstrated with an overall mean effect size of 0.878 (SE=0.183, 95% CI=0.519 to 1.236) indicating that the treatment group scored 0.878 standard deviations higher than the wait-list control group on all measures of anxiety. This also signifies that child-parent interventions are significantly more effective than no treatment at all. Table 8 illustrates the summary effect sizes and the relative weights assigned by the random effects model for each study. It is important to note that the effect sizes veer to the right, demonstrating large, statistically significant results.

Table 8. Waitlist Control Data

Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Barrrett 1996	0.926	0.283	0.080	0.372	1.481	3.275	0.001
Bodden 2008	0.757	0.319	0.102	0.131	1.383	2.371	0.018
Spence 2000	0.953	0.363	0.132	0.242	1.665	2.626	0.009
	0.878	0.183	0.033	0.519	1.236	4.799	0.000

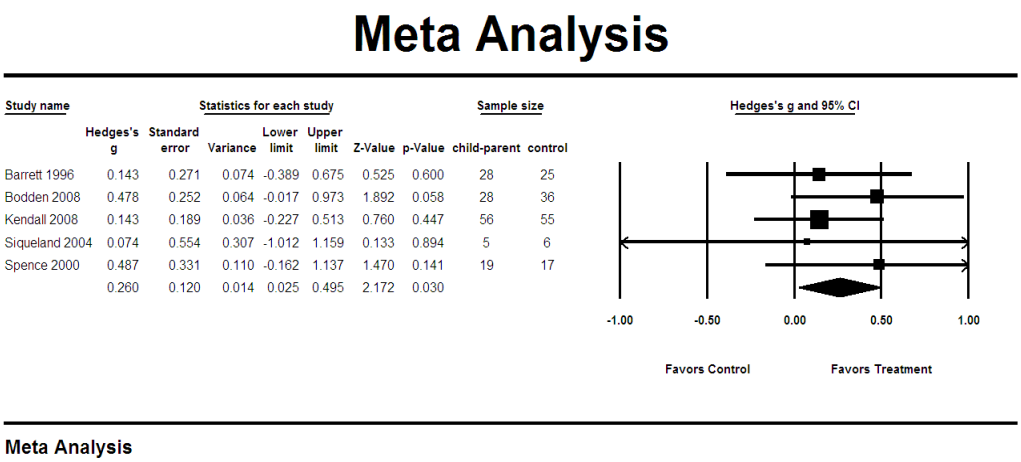


Meta Analysis

Follow-Up

Table 9 illustrates follow-up data that was available for five studies (62.5%) included in this meta-analysis. Effect sizes were calculated via CMA [Version 2] for each study and Hedges' *g* summary effect size, which has a built-in correction for small sample size bias. Using the random effects model the overall effect size was 0.260 (*SE*=0.120, 95% *CI*=0.025 to 0.0495).

Table 9. Follow-Up Data



Although there was considerable overlap with zero with respect to the confidence intervals in each of the individual studies, the *z*-value based on the overall mean effect size was 2.172 (p=0.030), yielding statistical significance and indicating a small, positive effect size. A test of homogeneity was also conducted on the follow-up data using the Q statistic. The Q was not significant (Q=1.896, df=4, p=0.755), indicating that inconsistency across effect sizes does not surpass what would be expected based on sampling error. Conversely, a significant Q indicates that there is a substantial variance among the effects, more than would be expected from sampling error alone. Table 10 depicts the follow-up data remaining consistent with the results at post-treatment, with both yielding nearly-identical small, positive effect sizes. For both the post-treatment and follow-up, the null hypothesis of homogeneity is accepted and the results are homogeneous overall (Borenstein et al., 2009).

Table 10. Follow-Up Test for Homogeneity Using Random Effects Model

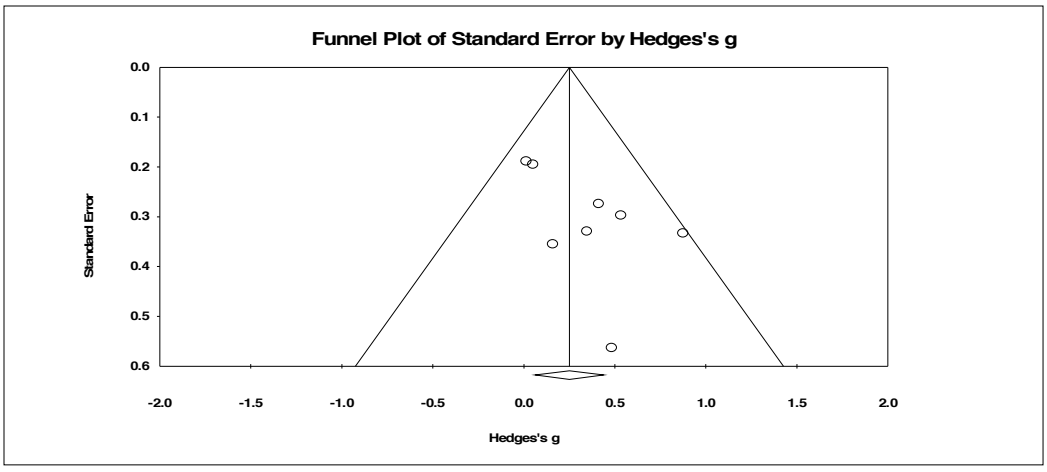
N	**Effect Size**	**SE**	**Variance**	**Lower Limit**	**Upper Limit**	**Z**	**P**	**Q**	***df*(Q)**	**P**
5	0.260	0.120	0.014	0.025	0.495	2.172	0.030	1.896	4	0.755

Publication Bias

In an attempt to minimize publication bias, particular efforts to locate gray or fugitive studies resulted in the location of one unpublished dissertation, accounting for 12.5% of studies included in this review. A funnel plot depicting the standard error of Hedges' g was generated to evaluate the potential for publication bias. The funnel plot (see Figure 1) depicts a mostly symmetrical diagram of studies about the effect size,

resembling a funnel shape. This depiction implies an absence of publication bias (Borenstein et al., 2009). In the presence of bias, the bottom of the plot would show a higher concentration of studies on one side of the mean than on the other. A tendency of the studies to congregate towards the bottom of the plot reflects the fact that the smaller studies are more likely to be published if they have larger than average effects, and hence a greater likelihood of yielding statistical significance.

Figure 1. Funnel Plot of Standard Error of Hedges' *g* for Post-Treatment Data



CHAPTER FIVE

DISCUSSION

The purpose of this study was to demonstrate the effectiveness of direct child-parent interventions for children and adolescents with anxiety disorders and provide recommendations to inform research and practice. This was accomplished by conducting a systematic review of the literature and a meta-analysis of the data. Because it has been estimated that approximately 20% of children and adolescents have a diagnosable anxiety disorder (APA, 2000; Langley et al., 2002), it is important to consider the effectiveness of interventions that are currently being practiced. Child-parent interventions particularly need to be investigated due to a high correlation of both parents and children having a diagnosable anxiety disorders, implying an intergenerational transmission of anxiety (Last et al., 1991; Merikangas et al., 1998). Other reviews and meta-analyses have demonstrated the effectiveness of individual CBT for children and adolescents with anxiety disorders (i.e., Cartwright-Hatton et al., 2004; Creswell & Cartwright-Hatton, 2007; In-Albon & Schneider, 2007; Ishikawa et al., 2007; James et al., 2009). The present systematic review is unique, as it has specifically addressed direct child-parent interventions, with inclusionary criteria extending beyond cognitive behavioral therapy. It includes an appraisal of diverse family-based treatments for childhood anxiety disorders including child-parent psychotherapy, attachment-based family therapy, parent-child interaction therapy, Theraplay®, family cognitive behavioral therapy, and family play

therapy. This chapter will discuss the meta-analytic findings involving direct child-parent interventions, examine the limitations of the review, and provide recommendations for future research and practice.

The review included 18 studies representing diverse methods of child-parent treatments for childhood anxiety disorders. Of these studies, eight met the inclusionary criteria for the meta-analysis. Results of the meta-analysis favored child-parent interventions with small, positive effects of 0.263. Follow-up data also yielded small, positive effects with a summary effect size of 0.260. All effect sizes were computed using a random effects model and standardized difference of means with Hedges' *g* bias correction for a small sample size via CMA [Version 2]. The results of the post-treatment and follow-up data were nearly identical and homogeneous, which implies that the results represent true effects and are likely not a result of sampling error. When compared to a waitlist control group, large, positive effects were demonstrated, with a summary effect size of 0.878, indicating that the average treatment group scored .878 standard deviations higher than the average control group on all measures of anxiety. Put another way, child-parent interventions are significantly more effective than no treatment at all.

Small Effect Size

As previously stated in the present meta-analysis, the child-parent condition was found to have small, positive effects at post-treatment and follow-up. Positive effects imply that the standardized mean difference falls in the predicted direction. Small summary effect size results in the present study may be attributed to overall small sample sizes and universal effects for studies on psychotherapies. Studies on psychotherapeutic

modalities carried out in real-world settings often contain a small number of participants and feature less control for client selection, treatment fidelity, and treatment for externalizing behaviors, potentially resulting in less significant outcomes (Connor-Smith & Weisz, 2003). The present study includes a small sample of studies that draw from a small number of participants, potentially contributing to the small summary effect size. The present study also draws from samples on psychotherapeutic models, which frequently produce small effect sizes and which are a common occurrence with respect to research on psychotherapies and other social work modalities (Kim, 2006).

Delayed Effects

In several studies, positive effects from child-parent interventions increased post-treatment, indicating the possibility that the treatment effects advance even after the active intervention. For example, Barrett and colleague's (1996) 12-month follow-up analysis showed approximately a 26% decrease in anxiety disorder diagnoses when compared to post-treatment. Similarly, Bodden et al. (2008) reported a decrease in anxiety disorder diagnoses by 21% at their 3-month follow-up. Kendall et al. (2008) reported a 12-month follow up of a 3% decrease in anxiety disorder diagnoses. Most staggering was Siqueland et al.'s (2005) description of a 40% decrease in primary anxiety disorder diagnoses at the 6-month follow-up. Only one study included in the present meta-analysis reported an increase of anxiety disorder diagnoses. Spence et al. (2000) reported a 4.5% increase at the 12-month follow-up. When examining long-term treatment gains, a follow-up study conducted in 2001 based on Barrett and colleague's original 1996 study demonstrated that overall treatment gains were maintained after 6

years. Manassis and colleagues (2004) conducted a 6-7 year follow-up to Mendlowitz et al. (1999) and found no significant differences between the post-treatment and follow-up samples. Both long-term follow-up studies sampled children who were six to seven years older than they were during the original study. It is interesting to note that the children who were seven to 14 years old during the initial studies were aged 13 to 21 during the follow-up studies. The children involved in long-term follow-up studies were, on average, able to maintain treatment gains made during an earlier stage of development. These results imply that not only are child-parent interventions effective and long-lasting, but they may also generalize across stages of development.

Limitations and Implications for Future Research and Practice

The limitations of the present study also present the opportunity for areas of future research and practice. The most compelling and overarching limitation to the present study are the limitations of the individual studies included in the meta-analysis. These limitations include the lack of follow-up assessments and small sample sizes. A general lack of statistical information from which to draw conclusions about potential correlations and effects is limiting. It is important to be able to examine how treatments can influence children of different ages with different primary anxiety disorders and other co-occurring disorders. Statistical data describing predictability of treatment outcome is also necessitated for parents who also have a diagnosable anxiety disorder. Gender is also not broken down for either children or parent participants.

Follow-Up Data

Only five of the eight studies incorporated in the present meta-analysis include follow-up data. Moreno's study (2007) is a dissertation and the remaining two studies, Wood (2006) and Mendlowitz (1999) do not include follow-up data that typically occur within the first 12 months post-treatment. Mendlowitz and colleagues (1999) do offer long-term follow-up data assessed in a separate publication via a structured phone interview conducted six to seven years post-treatment (Manassis et al., 2004). As interesting as it is to compare post-treatment to long-term follow up, these results are less conclusive. With no preceding follow-up study, it is difficult to compare and make conclusions about the results. A higher attrition rate also occurs with long-term follow-up studies, and the methods used to collect data over the telephone are less valid.

Small Sample Size

As previously stated, the sample sizes of the individual studies are small. A larger sample size allows the researcher to draw more profound and generalized conclusions regarding the effectiveness of child-parent interventions. Larger sample sizes enable the researcher to better distinguish potential moderating variables and include multiple comparisons of outcomes. See section entitled *statistical information* below for other possible limitations involving small effect sizes.

Non-Qualifying Studies

The intent of this review was to examine all forms of direct child-parent interventions, even those that extend beyond cognitive-behavioral treatments. Unfortunately, studies that qualitatively address child-parent interventions did not meet

the inclusionary criteria for a meta-analysis (i.e., they lacked necessary statistical information). The studies that did not qualify for the meta-analysis do play an important role in determining the effectiveness of child-parent interventions for childhood anxiety disorders. All included studies were based on cognitive-behavioral methodologies and lacked qualitative studies and other forms of quantitative data such as single group pre-post test designs and quasi-experimental designs. Qualitative research could help account for treatment effects that persisted beyond active treatment and could help explain factors stemming from relationships that are neither measured nor measurable, such as how relationships may have matured as a result of the therapeutic process, or could perhaps account for delayed effects. Psychoanalytic studies also have shown a significant degree of effectiveness in treating childhood emotional disorders. Target and Fonagy (1994) concluded in their study of 352 participants that psychoanalytic treatments showed significant improvements in 47.2% of their sample. Other meta-analyses have been conducted establishing the effectiveness of psychodynamic therapies for participants with similar disorders such as depression (Cuijpers, van Straten, Anderson & van Oppen, 2008). According to Leichsenring (2001), both psychodynamic and cognitive-behavior therapies demonstrate efficacy for individuals with depression. Future research needs to examine potential benefits for establishing an integrative model of psychoanalysis and cognitive behavioral therapies specifically for childhood anxiety disorders.

Statistical Information

Perhaps due to small sample size, the studies in this review lack statistics that compare treatment effects to certain variables such as pre-, post-, and follow-up treatment

outcomes specific to ethnicity, socioeconomic status, ages of participants, gender, secondary diagnoses, and correlations between parent and child anxiety diagnoses and outcome variables.

Ethnicity and Socioeconomic Status

Ethnicity and socioeconomic status are also important correlates to examine. Exploring whether or not a certain ethnic group responds more favorably to family-based interventions would yield a worthy outcome. Current research on social work interventions and ethnicity emphasize the importance of being sensitive to the diverse needs of families across ethnicities and cultures (McGoldrick, Giordano & Garcia-Preto, 2005). Even recruiting standards would need to be re-considered. Certain populations may not be able to translate the complex verbiage of anxiety disorders and may be deterred from the catchy names of outcome measures such as FEAR (Kendall, 1994). Testing the validity of assessments and outcome measures for diverse populations would also be helpful. Manual treatment titles for children based on Coping Cat (Kendall & Hedtke, 2006) have been changed to attract children in different countries, i.e. Coping Koala in Australia (Barrett et al., 1991) and Coping Bear in Canada (Scapillato & Mendlowtiz, 1993). This idea could extend to parent manuals and other outcome measures.

Not much attention has been given to examining whether or not child-parent interventions have more significant effects on participants or if they may be a predictor of treatment outcomes based on socioeconomic status of the family. Only four of the eight studies in the present meta-analysis reported on socioeconomic status and only two of

them reported specific data. The majority of the participants (87%) were categorized as middle class. It would be interesting to examine if socioeconomic status is a moderating variable or potential predictor of therapeutic outcomes.

Age

Another limitation is that children of all ages were not adequately represented in the included studies, specifically children under age seven and over age 14. Other meta-analyses (i.e., Creswell & Cartwright-Hatton, 2007; Silverman et al., 2007) reporting on childhood anxiety disorders also discuss the disparities of treatment implications across childhood despite the prevalence of anxiety disorders. Research has implied that family CBT methods may be more beneficial for younger children, as well as for families with a parent who also has an anxiety disorder, and older adolescents tend to benefit more from individual CBT (Barrett et al., 1996; Cobham et al., 1998; Crawford & Manassis, 2001). However, these findings are inconclusive and more research in this area is needed.

Gender

Gender was largely unreported in respect to diagnoses, treatment, and outcome in the studies included in the present meta-analysis. The United States Department of Health and Human Services (2010) reports that girls are diagnosed with anxiety disorders more often than are boys, but research does not suggest why more favorable outcomes are likely for boys or girls. Furthermore, parental gender was also largely unreported in studies with respect to the parent involved in child-parent interventions. It is also unknown which parent, if either, had a diagnosable anxiety disorder. It would seem that

effects of treatment could be influenced depending on the gender of the parent and if either parent, particularly the parent involved in treatment, had an anxiety disorder.

Secondary Diagnoses

Although many studies assessed for secondary and comorbid diagnoses, the authors of the studies did not draw conclusions regarding the retrieved data such as whether or not treatments for the primary anxiety disorders have an impact on the severity of secondary diagnoses. Specifically, do child-parent interventions impact secondary or comorbid diagnoses such as depression, ADHD, school refusal, oppositional defiance or other existing anxiety disorders? Do the secondary diagnoses improve given the ages of participants or nature of the primary anxiety disorder? Are there certain secondary diagnoses that are most common in children or adolescents with a primary diagnosis of an anxiety disorder, given family demographics? These questions present interesting areas of research worthy of exploration.

Parental Anxiety

With respect to family demographics as predictors of childhood anxiety disorders, current literature presents a strong correlation between parents with anxiety disorders and their children also having a diagnosable anxiety disorder. Merkiangas et al. (1999) estimate children with a parent diagnosed with an anxiety disorder are three times more likely to develop an anxiety disorder. Children are even 10 times more likely to develop an anxiety disorder if an anxiety disorder is present in more than one parent. However, there is little information in the present study that reflects these statistics or demonstrates how parental anxiety impacts diagnosis, treatment, or outcomes of the child participants.

Future research needs to focus on these correlates and also examine if child-parent treatments also are effective in treating parents diagnosed with anxiety disorders or other secondary diagnoses and if so, whether that also improves the daily functioning and coping behaviors of their children.

Conclusion

Due to the significant implications that childhood anxiety disorders have throughout the life span if left untreated, future research needs to focus on determining effective treatments throughout the developmental stages of childhood. The present study attempts to extend the research base on effective interventions for childhood anxiety disorders.

The effectiveness of child-parent interventions for the treatment of childhood anxiety disorders is promising, as evidenced by the small, positive effects of the present study. Future directions for research include replicating current studies and conducting research that includes larger sample sizes, a broader inclusion of ages, cultures, and socioeconomic statuses. Interventions that are in the early stages of development such, as parent-child interaction therapy, attachment-based family therapy, and child-parent psychotherapy deserve further inquiry, and replication and should be taken into account by future researchers when considering effectiveness of direct child-parent interventions for childhood anxiety disorders. Additionally, follow-up studies to already published research are vital to establishing effectiveness. Future research also needs to exercise a methodological system of comprehensively collecting and disseminating demographic information in relation to their sample, and should account for any potential moderating

variables. Adhering to rigorous data-collection and dissemination methods could help determine other factors that can later be tested for reliability or validity, such as whether or not treatment for anxiety also has an effect on comorbid or secondary diagnoses. Assessments, treatment manuals, and outcome protocols also need to be empirically tested as effective, reliable, and valid for diverse ages, cultures, and family demographics.

Social workers and other treatment professionals must utilize the most effective interventions to help relieve symptoms of childhood anxiety disorders, thereby improving present and future functioning. The present study contributes the most up-to-date information available with respect to effective treatments for childhood anxiety disorders. The present study can be used to help guide current practices when working with children and adolescents with anxiety disorders and guide future areas for research. Although the present study demonstrates a small, positive effect size of 0.263, it is a typical effect size for a small sample-sized, psychotherapeutic study conducted in a real-world setting. These findings are worthy of further inquiry and investigation

APPENDIX A

CLINICAL TRIALS OF FAMILY INVOLVEMENT FOR CHILDREN AND ADOLESCENTS WITH ANXIETY DISORDERS

Author	Design Type	Country	Sample Size	Ages (mean, SD)	Treatment	Outcome Measures	Comments
*Barret et al., (1996)	RCT	Australia	79	7-14 (9.33, 2.1)	FCBT v. ICBT & waitlist	*RCMAS, FSSR-C, CDI, CBCL, DASS	Children in the treatment group continued to improve at follow up with 95.6% no longer meeting criteria for anxiety disorders. Study retained for meta-analysis.
*Bodden et al. (2008)	RCT	The Netherlands	128	8-17(12.4,2.7)	FCBT v. ICBT & waitlist	*ADIS-C/P, SCARED-71, STAI, CBCL, CATS	Both treatment (2008) and control groups were highly efficacious with no statistical differences between the groups at follow-up. Study retained for meta-analysis.

Bogels & Siqueland (2006)	SGPP with waitlist control	The Netherlands	17	8-17 (12.7, 2.1)	FCBT, waitlist control	KSCID	No statistical significance until 3 months and 1 year follow-up. Did not qualify for meta-analysis.
Choate et al.,(2005)	SGPP	USA	3	4-8(-)	PCIT	ADIS-C/P, CSR, ECBI, CBCL, WRAS	No comparison information was available. Did not qualify for meta-analysis.
Choudhury (2004)	RCT	USA	53	7-13(10.13, 2.34)	ICBT and FBCT	ADIS-C/P& L FAD, GAS	Not enough statistical information was available. Did not qualify for meta-analysis.

Creswell et al., (2008)	SGPP	England	22	6-12(-)	CBT + mother	ADIS-C/P	Exploratory study. More children free of anxiety d/o when mother had no anxiety (41% v. 25%). Did not qualify for meta-analysis.
Howard & Kendall (1996)	SGPP	USA	6	9-13(10.17, 1.60)	FCBT	ADIS-C, OPS, FSSC-R, RCMAS, STAIC-P, CDI, CBCL, be CQ-C,P, SFI, TRF	No comparison group. Gains considered statistically significant. Did not qualify for meta-analysis.
*Kendall et al., (2008)	RCT	USA	161	7-14 (10.27, 1.77)	FCBT v. ICBT	*MASC, ADIS-C/P, CQ-C, CBCL, TRF,& WLC	At post treatment and follow-up, ICBT presented more significant results than FCBT and waitlist. Treatment

							gains were noted in both FCBT and ICBT groups. Study retained for meta-analysis.
Manassis et al, (2002)	RCT	Canada	78	8-12 (9.98,1.25)	GCBT v. ICBT	MASC, CGAS, GIS, CDI, SASC	Study compared individual and group CBT, both with parental involvement. No comparison available without parental involvement. Degree of parental involvement is unreported. Treatment gains were noted in both groups. Did not qualify for meta-analysis.
Manassis et al, (2004)	Follow-up	Canada	43	14-20 (16.5, 1.2)	6-7 years follow-up	Structured Phone Interview	Follow-up to Mendlowitz (1999). No significant differences were found between initial

							and long-term follow-up. Did not qualify for meta-analysis.
*Mendlowitz et al, (1999)	RCT	Canada	62	7-12(9.8, -)	FCBT v ICBT & Parent only	*RCMAS, CDI, CCSC, GIS	All treatment groups showed a decrease in anxiety symptoms post-treatment. Study retained for meta-analysis.
*Moreno (2007)	RCT	USA	143	6-16(10.09, 2.23)	FCBT v. GCBT	*RCMAS, ADIS-C/P, CBCL, CBQ, PRPBI, FQ, SSRS	More children in the treatment group did not qualify for an anxiety disorder at post-treatment. Study retained for meta-analysis.
Pincus et al, (2008)	SGPP	USA	10	4-8(6.2, -)	PCIT	ADIS-C/P	Specific to SAD. Pilot currently in progress, and data unavailable. Progress demonstrated but to non-clinical levels. Did not qualify for

							meta-analysis.
*Siqueland et al, (2005)	SGPP	Israel	24	6-13 (9.6, 1.7)	FCBT	*RCMAS, CDI	Statistically significant results. 70 at post treatment no longer met criteria for anxiety disorder. At 36 months post-treatment, 91% had no anxiety symptoms. Did not qualify for meta-analysis.
*Spence et al., (2000)	RCT	Australia	50	7-14(10.62, 2.05)	PI v PNI, WLC	*ADIS-P, RCMAS, SWQ-PU,SCAS	No statistically significant differences were apparent for either treatment groups. However, trend was noted for the PI (parent involved) group. Study retained for meta-analysis.
Toren et al, (2000)	SGPP	Israel	24	6-13(9.6, 1.7)	FCBT	*RCMAS, CDI	Statistically significant results. 70 at post treatment %

							no longer met criteria for anxiety disorder. At 36 months post treatment, 91% had no anxiety symptoms. Did not qualify for meta-analysis.
*Wood et al, (2006)	RCT	USA	40	6-13(9.83, 2.19)	FCBT vs. ICBT	*ADIS-C/P, CGI, ADIS-IV, MASC	At post-treatment, statistical significance was show for the FCBT group. No follow-up. Study retained for meta-analysis.

Notes:
- indicates no data available
* denotes used for meta-analysis.
Abbreviations:
ADIS-C, ADIS-P Anxiety Disorders Interview Schedule for Children, Child Version and Parent Version (Silverman & Nelles, 1988)
ADIS-C/P & L- Anxiety Disorders Interview Schedule Child/Parent: Clinician Severity Rating by Interference (Silverman & Albano, 1996, 1997)
ADIS-IV- Anxiety Disorders Interview Schedule for DMS-IV (Brown, Dadds, Rapee, 1996)
BAI- Beck Anxiety Inventory (Beck, Epstein, Brown, 1988)
BDI- Beck Depression Inventory (Beck, 1961)
CATS- The Children's Automatic Thoughts Scale (Schniering, CA & Rapee, RM)

CBCL- Child Behavior Checklist (Achenbach & Edlebrock, 1983)
CBQ- Conflict Behavior Questionnaire (Prinz, 1979)
CBT- cognitive behavioral therapy
CBT-ABFT- cognitive behavioral therapy with attachment based family therapy
CBT plus mother- cognitive behavior therapy with mother directly included in therapy
CCSC- The Children's Coping Strategies Checklist (Program for Prevention Research, 1992)
CDI- Children's Depression Inventory (Kovacs, 1992)
CGAS- Children's Global Assessment Scale (Shaffer, Gould, Brasic et al., 1983)
CGI- The Clinical Global Impressions- (CGI) Improvement Scale (RUPP Anxiety Group, 2001)
CQ-C/P- Coping Questionnaire-Child, Parent (Kendall, 1994)
CSR- Clinician Severity Rating Scale (Silverman & Nelles, 1988)
DASS- The Depression Anxiety Stress Scale (Lovibond & Lovibond, 1994)
ECBI- Eyberg Child Behavior Checklist (Eyberg & Pincus, 1999)
FAD- Family Assessment Device (Epstein, Baldwin & Bishop, 1983)
FAH- Fear and Avoidance Hierarchy (Craske & Barlow, 2000)
FCBT- family cognitive behavioral therapy
FQ- Friendship Questionnaire (Baron-Cohen & Wheelwright, 2003)
FSSC-R- Fear Survey Schedule for Children-Revised (Ollendick, 1983)
GAF- Mother/Father Global Assessment of Functioning based on ADIS-IV (American Psychological Association, 1994)
GIS- Global Improvement Scale (Guy, 1976; National Institutes of Health, 1985)
HAM-A- Hamilton Anxiety Rating Scale (Hamilton, 1959)
HAM-D- Hamilton Anxiety Rating Scale (Hamilton, 1960)
ICBT- individual cognitive behavioral therapy
KSCID- Kids Semi-structured Clinical Interview for DSM-IV diagnoses (Hien, Matzner, First, Spitzer, Williams & Gibbons, 1997)
MASC- Multidimensional Anxiety Scale for Children (March, 1998)
OPS- O'Leary-Porter Scale (Porter & O'Leary, 1980)
PCIT- parent-child interaction therapy
P/CRPBI- Parent/Child Report of Parent Behavior Inventory (Margolies & Weintraub, 2006)

RCMAS, RCMAS C/P- Revised Children's Manifest Anxiety Scale, Child/Parent (Reynolds & Richmond, 1978, 1985)
RCT- randomized control study
SASC- Social Anxiety Scale for Children (LaGreca & Stone, 1993)
SCAS- Spence Children's Anxiety Scale, social phobia subscale (Spence, 1997)
SCARED-71- The Screen for Child Anxiety Related Emotional Disorers-71 (Bodden, 2007)
SFI- Self-report Family Inventory (Beavers, Hampson & Hulgus, 1985)
SSRS- Social Skills Rating System (Gresham & Elliot, 1990)
STAI-C - State-Trait Anxiety Inventory for Children (Spielberger, 1973)
STAIC-P - Modification of Trait Version for Parents (Strauss, 1987)
SWQ-PU- Social Worries Questionnaire-Pupil (Spence, 1995)
TRF- Child Behavior Checklist- Teacher Report Form (Achenbach & Edelbrock, 1986)
WLC- Waitlist control
WRAS- Weekly Record of Anxiety at Separation (Choate & Pincus, 2005)

APPENDIX B

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VITA

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While at Loyola University Chicago, Kristen continued her private practice and teaching while conducting research in the area of child-parent interventions. She also conducted fieldwork with male African-American youths at risk of juvenile delinquency. Kristen also served as an editor and author for PRAXIS, a student-facilitated journal in the School of Social Work.