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Kay Tiffany Morrison  
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**The Dissertation Committee for Kay Tiffany Morrison certifies that this is the  
approved version of the following dissertation:**

**Testing a Model of Family Factors that Influence Youth Anxiety**

**Committee:**

---

Kevin D. Stark, Co-Supervisor

---

Cindy I. Carlson, Co-Supervisor

---

Timothy Z. Keith

---

Christopher J. McCarthy

---

Raymond C. Hawkins, II

**Testing a Model of Family Factors that Influence Youth Anxiety**

**by**

**Kay Tiffany Morrison, B.A.; M.A.**

**Dissertation**

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

**Doctor of Philosophy**

**The University of Texas at Austin**

**December 2015**

## **Dedication**

This dissertation is dedicated to the incredible parents and youth with whom I have had the honor to work and learn. I hope that this work paves the way for improved support and positive intervention for families and youth who will follow in your footsteps.

To my parents, Catherine “Kay” and George Morrison, who have always known when to accommodate or challenge me in learning the multiple dances of life, your unconventional ways of challenging yourselves with new adventures with grace, tenacity, and grit were my inspiration and rock. I share this with you, Mom, and thank you for your unending love and support. Dad, I have felt your multiple high fives through this journey and your memory has been a source of determination and a reminder to find joy in the process.

## **Acknowledgements**

I am filled with gratitude thinking of the immense village of support that has helped me complete this journey of graduate school and this dissertation. I would first like to thank my dissertation committee members for their support, flexibility, and encouragement throughout this process. It has been an honor to have your guidance throughout the process, but moreover, to witness and engage in the convening of curious minds about a topic I hold close. To my co-chair Dr. Cindy Carlson, thank you so much for your direction throughout the dissertation process and the entirety of graduate school. Your dedication to training and knowledge is deep; I also appreciate your ability to acknowledge and support student interest and make things possible for them. I am so thankful for your challenges to always strive for excellence and to be patient with the development of it. It has made me a stronger writer, researcher, and clinician. To my co-chair Dr. Kevin Stark, I want to thank you for your incredible balance of intellectual curiosity, work ethic, and calm. I learned so much from our supervisions together on the anxiety project as a human, clinician, and researcher, and am honored to have been a part of the study. You continue to inspire me to think of new ways to consider research ideas as well as conceptualize and tackle complex cases. Dr. Tim Keith, thank you for being a consistent champion for students in our program and by leading by quiet example. I am grateful for your subtle “cheerleading” that has helped us navigate the many aspects of the graduate school process. Thank you for empowering students such as myself to feel more confident not only applying new statistical methods, but also to become excited and

entranced by the possibilities they unlock for future research. Dr. Chris McCarthy, accomplished yet warm and accessible, thank you so much for sharing your wisdom and resources on stress and encouraging me to take a larger perspective on the theoretical underpinnings and connections of coping and anxiety. Your support and insightful comments were encouraging and made this an intellectually stimulating process. Dr. Ray Hawkins, after so many coincidental recommendations that I should meet you, thank you for agreeing to serve on my committee. I appreciate your attention to detail, your inquisitiveness, and dedication to training and supporting students. It is apparent from your former students I have met that you encourage them to emerge from the graduate school process as thinkers, feelers, and doers.

Finally, to my family and friends, you have made this process a shared and better one. Thank you to my cohort for joining me in this process, for always making me laugh, and making these years far more enjoyable than I could have done on my own. To my family and loved ones: thank you for your patience, interest, love, humor, and support.

Thank you.

# **Testing a Model of Family Factors that Influence Youth Anxiety**

Kay Tiffany Morrison, Ph.D.

The University of Texas at Austin, 2015

Supervisors: Kevin D. Stark and Cindy I. Carlson

Anxiety is one of the most prevalent childhood mental disorders and is linked to negative psychological and social outcomes. It is important to understand the factors that contribute to the development and maintenance of youth anxiety in order to inform treatment. Although individual factors, such as coping strategies, have been associated with anxious youth, family and societal factors are also influential in childhood anxiety. Parent psychopathology, aspects of family dysfunction, and family accommodation of anxiety have been implicated in elevated youth anxiety.

The primary purpose of this study was to expand previous research and test the extent to which family factors influence youth anxiety. Using latent variable structural equation modeling, this study examined how caregiver anxiety, family functioning, and family accommodation directly and indirectly affect anxiety levels. To meet the objectives of the current study, the sample included 7- to 17- year old youth and came from two sources, representing a range of clinical and non-clinical levels: an ongoing anxiety intervention study with youth diagnosed with an anxiety disorder and a community sample. A secondary purpose of this study was to initiate an exploratory

analysis of a more complex model of youth anxiety that includes youth active and avoidant coping strategies. The aim of this analysis was to investigate whether youth coping style (avoidant or active) may be a mediating factor between family factors and youth anxiety levels.

Results found evidence for family factors that influence youth anxiety, with particularly significant findings on the important influences of family accommodation on both youth avoidant coping and youth anxiety. Furthermore, caregiver anxiety also had significant direct influences on family dysfunction and family accommodation. While not significantly directly associated with youth anxiety, caregiver anxiety had significant total effects on youth anxiety through the combination of its direct and indirect influences via family accommodation and to a lesser degree, family dysfunction. Family accommodation also mediated the influence of caregiver anxiety on youth anxiety. Implications, limitations, and areas for further research are discussed.



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## **Chapter I: Introduction**

Youth anxiety disorders are highly prevalent and chronic (Costello & Angold, 1995; Kessler et al., 2005) and put youth at risk for significant impairment in social and academic functioning (Ezpeleta, Keller, Erkanli, Costello, & Angold, 2001) and for the development of other mental health disorders in adulthood (Kessler, Berglund, Demler, Jin, & Walters, 2005). Treatment of anxiety disorders also creates a large burden on the mental health system (Greenberg et al., 1999). The emotional and financial costs of youth anxiety disorders provide a strong impetus to examine the etiology and maintenance of youth anxiety disorders in order to develop and implement effective prevention and intervention programs.

A number of theories have been proposed to explain the development and persistence of youth anxiety. The developmental psychopathology theory posits a number of biological, environmental, and psychological factors contribute to the onset and maintenance of pediatric anxiety disorders (Cicchetti & Cohen, 1995; Masten & Braswell, 1991; Spence, 2001; Vasey & Dadds, 2001). Research has been conducted that has explored the possible role of a number of risk factors for youth anxiety disorder onset and maintenance (Graczyk, Connolly, & Coapci, 2005), although with equivocal findings. Experiencing negative life events, such as medical illnesses, divorce, natural disasters, or community violence (Benjamin, Costello, & Warren, 1990; Kashani & Orvaschel, 1988; 1993; Singer, Anglin, Song, & Lunghofen, 1995), developing a temperament characterized by avoidance of novelty and exploration, termed behavioral

inhibition (Biederman et al., 1990; Kagan, Reznick, & Gibbons, 1989), and attaining a certain cognitive developmental level that allows for the perception of and reappraisal of threat associated with anxiety (Crijnen, Achenbach, & Verhulst, 1997; Muris, Merckelback, & Luijten, 2002) have found mixed evidence for putting a youth at increased risk for anxiety. Racial and ethnic differences may also influence the types and number of stressors one experiences, but a dearth of research in this area has failed to elucidate how race and ethnic culture may be a risk or protective factor in anxiety development (Gaylord-Harden & Cunningham, 2009; Landrine & Klonoff, 1996; Pearlin, 1999). Researchers have suggested that the effects of potential vulnerabilities such as stressful life events are ameliorated or exaggerated by other factors that promote resilience, such as family social support and problem-focused coping strategies (Compas, 1987; White, Bruce, Farrell, & Klierer, 1998).

Gender is one factor that has consistent associations with anxiety. Girls report higher overall levels of anxiety, fears, and sensitivity compared to boys (Chaplin, Gillham, & Seligman, 2009), making females vulnerable for developing an anxiety disorder (U.S. Department of Health and Human Services, 1999). Girls also have been shown to develop anxiety disorders at a faster rate than boys, and tend to have higher levels of anxious behaviors and internalizing symptoms (Chaplin, Gillham, & Seligman, 2009; Crocetti, Hale, Femani, Raaijmakers, & Meeus, 2009; Lewinsohn, Rohde, & Seeley, 1998).

Family factors, both biological and environmental, have also been implicated in the transmission of youth anxiety disorders. Studies have demonstrated a genetic

predisposition for anxiety disorders aggregates in families (Crowe, Noyes, Wilson, Elson, & Ward, 1987; Skre, Onstad, Torgersen, Lygren, & Kringlen, 2000). However, Skre and colleagues (2000) found an estimated heritability of .47 for social anxiety disorders, which leaves considerable variance to other factors, particularly family environmental factors, for the development and persistence of youth anxiety disorders.

Evidence for family environmental factors influencing anxiety development in youth is prevalent. Parental behaviors and styles, such as high control and low warmth, have been implicated in retrospective reports of anxious adults (Gerlsma, Emmelkamp, & Arrindell, 1990; Parker, 1983), in self-reports of anxious children (Last & Strauss, 1990; Messer & Beidel, 1994; Stark et al., 1990), and in observations of parent-child interactions (Siqueland, Kendall, & Steinberg, 1996; Turner, Beidel, Dancu, & Stanley, 2003; Woodruff-Borden, Morrow, Brouland, & Cambron, 2002). However, focusing on individual parental behaviors does not account for the additional social influences in the family milieu that may buffer or enhance the development of youth anxiety (Kendall et al., 1992; Messer & Beidel, 1997; Manassis & Bradley, 1994; Thoits, 1995). Particular patterns of dysfunction at the family level, namely cohesion, communication, control, involvement, and affective expression, resemble the parental behaviors associated with youth anxiety (Chorpita, Brown, & Barlow, 1988) and have been found or suggested for examination in future studies (Chapman & Woodruff-Borden, 2009; Cummings, Daviews, & Campbell, 2000; Joneson, Cohen, Kasen, Smailes, & Brook, 2001; Thoits, 1995; von Oort, Verhulst, Ormel, & Huizink, 2010).

Parent psychopathology, particularly parental anxiety, has also been linked to youth anxiety beyond genetic transmission. Anxious parents model more fear in ambiguous situations than non-anxious parents (Fisak & Grilss-Tquechel, 2007) and tend to be more controlling in anxiety-producing situations (Barrett & Rapee, 1996). Parental anxiety can also indirectly affect anxiety development through negative influences on family functioning, particularly on family communication, family involvement, and family cohesion (Essex, Kelin, Zho, & Kraemer, 2003; Victor et al., 2007).

Parents and family members may also contribute to youth anxiety development and maintenance by actively allowing their child to avoid situations that do or would potentially make them anxious, termed accommodation (Lebowitz, 2012). By continually avoiding situations, or seeing parents make arrangements around situations or avoid things themselves, it is likely that fear of that stimuli and feelings of vulnerability are reinforced, predictive of elevated anxiety in Beck's (1982) model. However, accommodation and its effects on youth anxiety have very little empirical examination. More recent interest in the effects of accommodation has provided an impetus for research in this area specifically regarding pediatric anxiety disorders. A few studies have examined descriptive information, providing initial evidence that accommodation is highly prevalent in families with anxious youth (Lebowitz, 2012; Jones, 2013; Lebowitz, Scarfstein, & Jones, 2015). Only two studies (Jones, 2013; Jones, Lebowitz, Scarfstein, & Stark, 2015) has begun to investigate the influences of family factors on accommodation, although prior research indicating high levels of control and modeling of avoidance in

anxious parents suggests potential associations between parental anxiety, family functioning, and accommodation.

Coping strategies, or the cognitive and behavioral actions that a youth uses to manage anxiety (Lazarus & Folkman, 1984), can also contribute to the development and maintenance of youth anxiety. Research supports Beck's theory (1982, 2002) and Lazarus' (1991) model of the association between coping and anxiety. The consistent use of maladaptive coping strategies, such as avoidance and self-blame, are associated with higher levels of anxiety in youth (e.g., Garnefski et al., 2001, 2002; Patterson & McCubbin, 1987; Sandler et al., 2000), while active strategies such as problem-solving and seeking social support have been found to be more adaptive and are associated with lower levels of anxiety (e.g., Gaylord-Harden & Cunningham, 2009; Ebata & Moos, 1991).

Researchers (Ebata and Moos, 1991; Frydenberg & Lewis, 2009; Roth and Cohen, 1986; Sandler et al., 2002) have found evidence for classifying coping strategies as active and avoidant strategies. Consistent use of active strategies that attempt to face and manage stressors is related to improved mental health, while repeated use of avoidant strategies in controllable situations does not allow an individual to develop skills and control and is associated with increased anxiety symptoms (Connor-Smith et al., 2000; Landis et al., 2007; Wadsworth & Compas, 2002). Girls tend to use more support and emotion-focused strategies and fewer distraction strategies than boys (Frydenberg & Lewis, 1991; Thoits, 1995). Applying the active and avoidant classification system, Frydenberg and Lewis (2009) found that girls tended to use more negative avoidant

strategies than boys. The research base indicating the relationship between coping strategies and anxiety in youth provides a basis for assessing factors that influence the development of a youth's arsenal of coping strategies.

The family milieu provides a rich context in which a youth's coping strategies develop. Although much of the research on the role of the family environment in the development of coping skills in youth has focused on pediatric populations (Compas et al., 2001), it is likely that parental anxiety and family functioning influence a youth's coping strategies. Parents with an anxiety disorder have been found to model less adaptive coping strategies (Buckley, 2003; Chapman & Woodruff-Borden, 2009; Gil et al., 1991), exert more control (Barrett et al., 1996), discourage approach and active coping in ambiguous situations (Rapee, 2001), and doubt their child's ability to cope (Woodruff-Borden et al., 2002). Aspects of family functioning (communication, involvement, control) also influence the strategies children employ (Kliewer et al., 1996; Simpson, 2011), although limited research has been conducted. Parental anxiety appears to influence coping strategies directly and indirectly through aspects of family functioning, such as communication and control (Barrett & Rapee, 1997; Buckley, 2003; Simpson, 2011).

Despite theoretical evidence that accommodating practices would likely reduce the number of adaptive strategies used, the effects of family accommodation of anxiety on a youth's coping strategies have not been explored. Family environments that provide a child with fewer opportunities to engage in appropriate coping strategies can lead to a decreased perception of control and self-efficacy (Chorpita & Barlow, 1998), indicated as

psychological vulnerabilities for anxiety development (Beck, 1982; Stark et al., 1990). Parental accommodation of anxiety prevents engagement in anxiety-producing situations and does not allow the development and mastery of efficacious coping strategies; rather, it reinforces anxious schemata. Parents who frequently remove their child from distress are equally reinforced by the continued anxiety and lack of appropriate coping skills (Rapee, 2002; Whaley et al., 1999; Wood et al., 2003).

As evidenced from the theoretical and empirical literature and the gaps in the literature, it is imperative to investigate the extent to which the particular constellation of family factors, more specifically parental anxiety, aspects of family dysfunction, and family accommodation, influence each other, and youth anxiety. Additionally, it is important to begin a preliminary assessment of a more complex model that investigates the potential influences of family factors on youth coping and coping as a potential mediator between family factors and youth anxiety levels.

Understanding a more complex model of anxiety that includes the influences of parental anxiety, family dysfunction, and family accommodation could help inform treatment for youth anxiety. If good model fit is found, it will demonstrate that specific family factors influence youth anxiety levels and are appropriate targets for intervention.

The primary purpose of this study was to test the extent to which family factors influence youth anxiety. Using structural equation modeling, this study examined how parental anxiety, family functioning, and family accommodation affect anxiety levels. To meet the objectives of the current study, the sample included 7- to 17- year old youth and came from two sources, representing a range of clinical and non-clinical levels: an

ongoing anxiety intervention study with youth diagnosed with an anxiety disorder and a community sample. Ratings of parental anxiety, family dysfunction (communication, affective expression, involvement, control), family accommodation of anxiety behaviors, and severity of anxiety symptoms were obtained from the youth, their parents, or both. A secondary purpose of this study was to initiate an exploratory analysis of a more complex model of youth anxiety that includes youth active and avoidant coping strategies. As the sample size was not sufficient to fully assess whether coping strategies are influenced by family factors and also serve as mediators between family factors and youth anxiety, this secondary analysis was completed to provide preliminary support for continued research and investigation on the role of coping strategies in the initial model of family influences on youth anxiety.



## **Chapter II: Literature Review**

### **OVERVIEW OF YOUTH ANXIETY DISORDERS**

#### **Symptomatology**

Anxiety in children and adolescents is an intense apprehension or fear of an actual or perceived threat to one's self or another person (DHHS, 1999; Rapee, 2001). Anxiety can be focused on specific situations, objects, and activities, or anxiety can present as a more unfocused, general tension (Kendall et al., 1992). Fears often lead to behavioral actions to remove oneself from the situation perceived to be dangerous or to worried thoughts about one's ability to control fearful circumstances (Chorpita & Barlow, 1998; Rapee, 2001).

Symptoms of anxiety involve cognitive, behavioral, and physiological reactions. Youth have thoughts about how they perceive the situation, their feelings, and what they are thinking. Examples of anxious cognitive responses are "What is going to happen to me now?" and "What if I mess up and embarrass myself?" (Kendall et al., 1992). Behavioral symptoms are physical actions that attempt to avoid the situation or are actual escape behaviors. Other actions reflecting an anxious state include crying, nail biting, and thumb sucking (Barrios & Hartmann, 1988). Physiological responses arise from elevated activity in the autonomic nervous system and include perspiration, a flushed face, trembling, abdominal pain, and enuresis (Barrios & Hartmann, 1988). Some individuals also experience headaches, muscle tension, feelings of suffocation, sweating, and hot or cold flashes. To be deemed an anxiety symptom, physiological responses must be

associated with a direct cause and effect relationship of the symptom and a history relating to a fearful situation (Werry, 1986).

Although experiencing fear and avoiding truly dangerous situations serve as an adaptive response in many situations (Morris & Kratchowill, 1985), anxiety becomes a concern when its duration and severity negatively affect and impair an individual's functioning, or impinges on the family or larger social network (Kendall, Howard, & Epps, 1988). Anxious thoughts, feelings, and behaviors can interfere with academic and social activities and also can create stress between family members.

Distinguishing between normal and clinical levels of anxiety is important for appropriate diagnosis and intervention, and in research. Five criteria identify abnormal levels of anxiety: dysfunctional cognitions, impaired functioning, symptom persistence, false alarms of reactivity, and stimulus hypersensitivity (Clark & Beck, 2010). Table 1 in Appendix A lists DSM-5 (American Psychological Association, 2013) anxiety disorders with abbreviated descriptions. To receive a clinical diagnosis of an anxiety disorder, all five of these criteria must be met.

### **Prevalence**

Anxiety disorders are some of the most prevalent diagnoses in youth and adults (Costello & Angold, 1995; Kessler et al., 2005). According to the National Institute of Mental Health, anxiety has a lifetime prevalence of 25.1% in adolescents, with 5.0% of adolescents experiencing an anxiety disorder at any particular time (Merikangas et al., under review). Six-month prevalence rates range between 6-27% for children and adolescents (Breton et al., 1999; Costello & Angold, 1995; Romano et al., 2001).

Anxiety rates for children aged 6-12 years old average a mean rate of 12.3%, while youth age 13-18 years old had a slightly lower mean average rate of 11%.

Prevalence estimates vary between anxiety disorders. Prevalence rates for children include Generalized Anxiety Disorder (GAD) 1.7%, Social Phobia (SoP) 2.2%, and Separation Anxiety Disorder (SAD) at 4 % (APA, 2013). With regard to specific diagnoses, adolescents have rates similar to children (GAD 1.7%) with the exceptions of social phobia (5.0%), which increases in adolescence, and separation anxiety disorder (2.3%), which decreases in adolescence. The most common anxiety disorders in children and adolescence are specific phobia, General Anxiety Disorder (GAD), and Separation Anxiety Disorder (SAD) (Breton et al., 1999; Whitaker et al., 1990). Median age of anxiety disorder onset before age 21 is 8 years of age, with the majority of the youth cases ranging between the ages of 6 and 12 years of age (Kessler et al., 1994).

Diagnoses of anxiety disorders with comorbid conditions have varying prevalence rates. Youth anxiety disorders are more often diagnosed along with a comorbid condition, with the majority of cases presenting with multiple anxiety disorders (Costello & Angold, 1995). Anxiety is frequently comorbid with depression, with prevalence rates ranging between 15.9%-61.9% (Brady & Kendall, 1992). In sum, anxiety disorders are very prevalent in children and adolescents, age of onset is frequently in middle childhood, and prevalence rates vary across specific diagnoses and with comorbid conditions.

### **Effects of youth anxiety disorders**

The high prevalence rates and duration of anxiety disorders create a large financial burden on the healthcare system. Anxiety disorders are the most financially

costly group of mental disorders, resulting in annual direct and indirect costs of over 43 billion dollars (Greenburg et al., 1999). Current expenses are predicted to be much higher.

The negative short-and long-term effects of anxiety make early detection and intervention even more critical. As the majority of anxiety disorders develop in childhood and adolescence (Kessler et al., 1994; Newman et al., 1996), significant impairment in functioning can result (Ezpeleta et al., 2001). Youth with anxiety disorders are more likely to experience a reduction in quality of life and social functioning (Sherbourne et al., 1996), school difficulties (Davidson et al., 1993; Essau et al., 2000), and social neglect (Strauss et al., 1988). Children who suffer with anxiety often continue to struggle as adults (Last, Phillips, & Statfield, 1987). Youth with an anxiety disorder also have an increased vulnerability for developing other mental health disorders in adulthood (Kessler et al., 2005). The negative individual effects and financial burdens of treatment provide further evidence of the need for continued research on the influences of youth anxiety in order to develop maximally effective treatment programs for this highly prevalent group of disorders.

Overall, anxiety disorders are one of the most prevalent disorders and have high personal and societal costs. Many anxiety disorders begin during childhood and adolescence and can have both short-and long-term negative effects on an individual and family (Ezpeleta et al., 2001; Last et al., 1987, Strauss et al., 1988). The most common youth anxiety disorders are specific phobias, General Anxiety Disorder, and Separation Anxiety Disorder (Breton et al., 1999; Newman et al., 1996), with many cases having

comorbid anxiety disorders (Costello & Angold, 1995) or depression (Brady & Kendall, 1992). Due to the high prevalence and extreme costs associated with youth anxiety disorders, there is a strong impetus for early detection and research on the treatment of youth anxiety disorders. This dissertation will focus on two of the most prevalent youth anxiety disorders, General Anxiety Disorder (GAD) and Separation Anxiety Disorder (SAD), and Social Phobia (SoP), which also is highly prevalent in children and adolescents (Albano et al., 2003). GAD, SAD, and SoP were also the focus of a major study funded by the National Institute of Mental Health the Child/Adolescent Anxiety Multimodal Study (CAMS; Compton et al., 2010) to examine anxiety intervention treatment effectiveness for youth aged 7-17. The present study will utilize data from a source that is replicating the CAMS study and also focuses on GAD, SAD, and SoP.

#### **ASSESSMENT OF YOUTH ANXIETY**

Assessment of youth with anxiety disorders is a process that can include diagnostic interviewing, self-report measures, parent reports, family history, and behavioral assessments. Cognitive and social factors that may influence the onset of an anxiety disorder are important to consider. While this process is primarily similar to diagnosing anxiety disorders in adults, developmental considerations must also be made for child and youth.

#### **Interviews**

Semi-structured or structured diagnostic interviews often begin assessments for anxiety disorders in youth because they are comprehensive and provide specific diagnostic criteria performed by a trained clinician. This traditionally occurs with the

parent(s) and child together, or interviewing both individually. A commonly used interview with strong validity and reliability is the Anxiety Disorders Interview Schedule for Children (ADIS-C/P; Silverman & Albano, 1996). The ADIS-C/P provides an in-depth tool for diagnosing multiple anxiety disorders and the severity of symptoms and impairment. The ADIS-C/P demonstrated high inter-rater reliability, with .84 for child, and .83 for parent interviews, with an overall test-retest reliability of .78 (Silverman & Eisen, 1992). The ADIS-C/P diagnoses of social phobia and separation anxiety disorder have good convergent validity with the Screen for Child Anxiety related Emotional Disorders (SCARED; Birmaher et al., 1997) and the Multi-Dimensional Anxiety Scale for Children (MASC; March et al., 1997). The ADIS C/P and SCARED also have good convergent validity on GAD (Silverman & Albano, 1996). Factors such as parental accommodating behavior, parental anxiety, lack of rapport with an interviewer and impatience with the interview may influence results, perhaps accounting for somewhat low parent-child agreement on diagnostic interviews (Beidel & Turner, 2005; Langley, Bergman & Piacintini, 2002). Although diagnostic interviews such as the ADIS-C/P are time intensive, they have demonstrated reliability and validity, typically elicit a wealth of information relevant to the referral question, often involve both parent and child, and provide diagnoses and severity ratings. Factors that may influence potential lack of agreement between child and parent during interviews should be considered when a clinician integrates the interviews to make a diagnosis.

## **Questionnaires**

In addition to a diagnostic interview, parent and teacher rating scales can provide further evidence of functioning in multiple domains. The Conners Rating Scale includes separate scales for parents and teachers and aids in identifying problematic behaviors and evaluates treatment effectiveness (Goyette, Conners, & Ulrich, 1978). The Conners Rating Scale includes factors associated with anxiety, and taps a number of related behaviors. The Conners Scales are widely used and have high test-retest reliability, interrater reliability, and construct validity of the scales (Conners, 1989). The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) is a second measure frequently used to assess strengths and areas of concern across both internalizing and externalizing symptoms. The CBCL has both parent and teacher versions and provides an overview of functioning, but is less revealing about anxiety-specific symptoms than other measures (Stallings & March, 1995). These screening tools provide additional information about a youth's functioning in multiple domains and merely provide further support for the diagnosis made during a diagnostic interview.

Self-report measures and checklists are other more specific tools typically used during the diagnostic process for anxiety disorders in youth. While not providing a diagnosis, self-report measures enable a youth to report the covert, internal symptoms and experiences of anxiety, allowing a clinician to gain an understanding of a youth's subjective experiences. Self-report measures are widely used due to ease of administration, minimal time needed, and relatively low cost, making them an economical choice in revealing a great deal of information about a youth's anxiety from

their own perspective (Straus, 1993). Youth as young as two and three years old have been found to be able to identify symptoms of anxiety and fear (Bretherton et al., 1986). LeBaron and Zeltzer (1994) found that six-year-olds completed self-report measures of anxiety that correlated well with observer ratings.

Self-report measures of child and adolescent anxiety disorders vary along the dimensions of assessing state-versus-trait anxiety or global-versus-specific situational anxiety (Roberts, Vargo, & Ferguson, 1989). State measures assess transitory symptoms relating to a specific stressor, like a doctor's appointment or speaking in front of a crowd. Trait measures, on the other hand, assess stable symptoms across multiple situations and depict a generalized representation of a youth's anxiety in everyday life. Global assessments equally provide an overall anxiety level, assuming the child's anxiety is similar across situations. Like state-based measures, situation-specific measures elicit anxiety ratings in particular contexts. The state-trait dimensions have received less support in the literature for youth, displaying evidence that both states and traits represent symptoms that last for differing time periods in few or many contexts (Stallings & March, 1995). Most measures of youth anxiety thus aim to detect stable symptoms associated with the contexts in which they occur.

Two popular global diagnostic and screener examples of self-report anxiety measures with demonstrated reliability and validity include the Screen for Child Anxiety related Emotional Disorders (SCARED-C; Birmaher et al., 1997), and the Multidimensional Anxiety Scale for Children (MASC; March, Stallings, Parker, et al., 1994). These instruments are often used because they are developmentally appropriate in



that they are of manageable length and use understandable wording and have simple scale descriptors.

Both of these instruments also have a parent rating scale that can further inform assessment. However, agreement between parent and child ratings has been found to be low with both of these measures (Baldwin & Dadds, 2007; Muris et al, 1999; Nata et al., 2004). Children often report more symptoms than parents, and child-reported symptoms align with those endorsed in clinical interviews (Baldwin & Dadds, 2007). Although it is commonly believed that parents are more accurate reporters of symptoms than are children under age ten especially with externalizing disorders, children of all ages tend to be better reporters of their internalized symptoms, which are more difficult to detect (Klein, 1991; Rapee, 1999). With disagreements, child reports may be more reliable in providing additional information to the diagnostic interview.

### **Behavioral observations**

Finally, behavioral observation data may be included during the diagnostic process. These may take the form of a more structured observation, such as the Family Anxiety Coding Schedule (Dadds, Rapee & Barrett, 1994; Dadds et al., 1996) and the Direct Observation Form (DOF; McConaughy, 1985), or may be less structured on identifying antecedents and subsequent behaviors and consequences. An awareness that developmental differences in observable symptoms of anxiety exist is important to consider, as younger children tend to display overt stress such crying and screaming, whereas older youth are more likely to show more subtle behaviors, such as groaning and flinching (Jay et al., 1983).

As with all diagnostic measures, there are a number of factors to consider that may influence the data. For example, youth may under- or over-estimate their anxiety in order to present a more positive depiction of their experience to make themselves feel better or to avoid treatment (Glennon & Weis, 1978). Gender and cultural factors may also influence reporting, as girls tend to be more willing to report anxiety and fear than males (Ollendick, Matson, & Helsel, 1985). Also, the method of assessment needs to be understandable for a child's language ability to ensure the validity of responses. Measures must use recognizable vocabulary and be at an appropriate reading level for the child. When help is needed to read the questions, one must be aware how this assistance may encourage a biased response (Stallings & March, 1995).

### **Summary of anxiety disorders assessment**

Overall, the diagnosing a child or adolescent with an anxiety disorder is a process that involves diagnostic interviews performed by a trained clinician, and often incorporates other self-report and parent-and teacher-report measures that provide additional insight or evidence of symptoms in multiple domains and from different perspectives. A diagnostic interview with good reliability and validity is the Anxiety Disorders Interview Schedule for Children (ADIS-C/P; Silverman & Albano, 1996), which establishes whether a youth meets criteria for a specific anxiety disorder and also provides a severity rating of a youth's symptoms. As youths have been found to accurately report their symptoms and experiences more so than parents (Baldwin & Dadds, 2007; Klein, 1991; Rapee, 1999), self-report measures are often used in addition to diagnostic interviews to elicit information regarding the child's subjective experience.

Two such self-report measures with high reliability and validity often used are the Screen for Child Anxiety related Emotional Disorders (SCARED-C; Birmaher et al., 1997), and the Multidimensional Anxiety Scale for Children (MASC; March et al., 1994)

## **CONCEPTUALIZATION OF YOUTH ANXIETY**

### **Stress and anxiety**

Conceptual understanding and research on anxiety has evolved from stress methodology and research. While the concepts of stress and anxiety are often used interchangeably and distinguishing between them can be challenging, delineations and connections between stress and anxiety are useful in conceptualizing anxiety.

Historically, the construct of stress has been used to refer both to negative situations that provoke anxious reactions and as stress reactions themselves (Spielberger, 1976). Spielberger (1976) proposed that “stress” should identify objective aspects of a specific situation and “threat” should denote an individual’s perception that a particular situation is dangerous. Objectively dangerous situations will mostly be perceived as threatening, although some non-dangerous situations may be interpreted as threatening. Endler and Parker (1990) proposed that a variety of factors determine whether or not a specific situation is perceived as threatening, such as mood, past experiences with such situations, memories elicited from the situation, cognitive vulnerability, and coping skills. Lazarus (1976) proposed that anxiety is a stress-related emotion that consists of affect, an impulse to act, and physiological changes. Endler (1983) later suggested that stress emotions like anxiety also affect cognitions. Endler and Parker (1990) note the importance of studying anxiety in context, and proposed an integrated, interactional

model depicting the connections between anxiety, stress, and also coping. Endler and Parker (1990) suggested four phases in which stressor situations interact with personal vulnerabilities (e.g., trait anxiety, cognitive style, etc.) to elicit a perception of threat. The perception of threat induces an increase in current anxiety in that situation, which precedes reactions to elevated anxiety, such as coping actions and physiological responses. For a more thorough discussion of the development of stress and anxiety research, refer to Appendix B.

Overall, the study of anxiety has evolved from the research and development of the conceptualization of stress. Although initially used interchangeably, anxiety has been distinguished as a stress-related emotion that causes an individual to react to physiological and cognitive appraisals of anxiety. This distinction establishes the importance of the connection between stressors, anxiety, and coping responses. The interactional model proposed by Endler and Parker (1990) in which phases of stress, threat perception, anxiety, and coping occur provides support for the associations between vulnerabilities, anxiety, and coping responses investigated in this study.

### **Theoretical orientations for youth anxiety**

A number of theoretical orientations have been used to conceptualize and investigate youth anxiety. Biological, behavioral, and cognitive perspectives have explored the complex nature of anxiety disorders. Biological paradigms have focused on the physiological reactions to stressors and anxiety. Elevated autonomic arousal, such as a higher basal heart rate in non-anxiety provoking situations, has been an important area of research (Barlow, 2002). Behavioral models (Mineka, 1985; Mineka & Zinbarg, 1996)

emphasized how conditioning contributes to anxiety, suggesting that anxiety is acquired and reinforced through continued avoidance of the initial fear-invoking situation. However, biological and behavioral models could not fully account for the fact that certain individuals, and not others, developed and maintained specific phobias or anxiety disorders even when all individuals had predicted risk factors. Both biological and behavioral models have since expanded their views to acknowledge cognitive influences on anxiety disorders (Brewin, 1988; Davey, 1977; Rachman, 1977). The cognitive perspective, which focuses on how thoughts influence the way an individual feels and behaves (Clark & Beck, 2010), has helped explain why anxiety may persist, even in the absence of danger or threat (Clark & Beck, 2010).

The tripartite model of anxiety combines the biological, behavioral, and cognitive perspectives and has been the predominant model in the study of anxiety in all ages. The tripartite model considers the physiological, subjective, and behavioral responses associated with anxiety (Lang, 1968). The basic premise of a cognitive model of anxiety is that thoughts influence the way an individual feels and behaves (Clark & Beck, 2010). Thoughts of perceiving threat lead to the sensation or interpretation of fear, which can result in avoidance or other behaviors.

In this model, individuals are believed to have a cognitive vulnerability for detecting threat in situations more so than non-anxious individuals (Beck, Emery, & Greenberg, 1985; Macleod, 1991). In this two-step process, a youth first appraises a situation as dangerous and outside of their ability to manage, which usually is due to dysfunctional cognitive processing and results in a magnified, unrealistic perception of

the harm level (Clark & Beck, 2010). This overestimated representation of danger leads an individual to eventually avoid the stressor or situation, and occurs during the primary appraisal of threat (Rachman, 2004). In the second phase, the secondary elaborative reappraisal, the state of anxiety increases when the individual reassesses the situation in a distorted fashion and with the belief that he or she does not have the ability to cope or overcome the situation or anxiety (Clark & Beck, 2010). This is similar to Lazarus's two-stage model of anxiety (Lazarus, 1991; Lazarus & Folkman, 1984). During the first stage of Lazarus's model, primary appraisal of the situation occurs, in which perceived threat is detected. Lazarus model differs from Beck's model in that evaluation of one's ability to manage does not occur until the secondary appraisal stage, in which an individual assesses whether he or she is able to handle the perceived threat. In both models, anxiety arises when one concludes he or she does not have the resources and abilities to protect themselves and manage the threat. High vulnerability for anxiety is also associated with a tendency to underestimate one's overall ability to cope with the perceived or realistic threat (Beck et al., 1985, 2005). This lack of self-efficacy further reinforces one's beliefs in the threat level of the situation, one's personal vulnerability, and one's ability to manage.

A purely cognitive model does not adequately account for interpersonal and environmental influences in the development of youth anxiety disorders. While the cognitive model acknowledges the individual and internal factors that contribute to the appraisal, reaction, and reinforcement process and is an excellent tool for explaining the reciprocal underpinnings of anxiety, it does not necessarily address correlated aspects that

influence the adoption of the hypersensitive perception of threat. Additionally, the biological sensitivities and potential genetic contributions are not a focus of the cognitive model. The cognitive model, while it has much support and value as a clear depiction of anxiety's developmental pathway and maintenance, can be expanded to include other etiological elements that contribute to the onset of youth anxiety disorders. A consideration of additional etiological components and a more integrated model incorporating multiple causal elements is warranted.

### **Etiological models for youth anxiety**

In addition to the cognitive model, a number of models that attempt to explain the development of youth anxiety disorders have been proposed. Biological and interpersonal perspectives support the temperament (Biederman et al., 1990; Kagan et al., 1990) and attachment model (Ainsworth & Wittig, 1969; Bowlby, 1969; Main & Hesse, 1990), respectively. The temperament model explored biological predispositions as precursors for anxiety (Biederman et al., 1990; Kagan et al., 1984; Kagan et al., 1990). The attachment model proposed anxiety developed from an insecure attachment with a caregiver and negative internal working model of one's ability to cope (Bowlby, 1969; Ainsworth et al., 1978; Main et al., 1985). However, these two approaches have limited evidence for a consistent association with anxiety disorder manifestation over time and are constrained by their focus on one influential factor (Messer & Beidel, 1997). In the past two decades, there has been an increased push for a more integrated model that considers both a youth's internal and external experiences and environment in the development of an anxiety disorder (Gray, 1982, 1987; Kendall et al., 1994; Manassis &

Bradley, 1994; Meichenbaum, 1997). The Biopsychosocial Model (BPS) (Engel, 1980) and later developmental psychopathology model (Cicchetti & Cohen, 1995; Masten & Braswell, 1991; Vasey & Dadds, 1999), fill this void by focusing on how social factors, particularly family factors, contribute to the cognitive, biological, and interpersonal vulnerabilities that lead to the development psychopathology in youth.

The BPS model focuses on how the mind, body, and external factors influence the etiology of a disorder or disease. The physical component is comprised of a body's biology and functioning, the psychological piece considers the emotional and cognitive appraisals, and the social aspect explores how social factors (such as interpersonal factors, culture, socioeconomic status) interact to manifest mental illness. Based on system models by van Bertalanffy (1968), the BPS model moves beyond a reductionist view of singular causes in a vacuum to a more complex system in which an individual is affected by the organization and parts of an increasingly larger hierarchical structure. The BPS model is frequently used to explore social-cognitive models of physical and mental health (Armitage & Connor, 2000).

The developmental psychopathology model stems from the BPS model and offers a contemporary framework frequently used in research on the etiology of youth anxiety (Cicchetti & Cohen, 1995; Masten & Braswell, 1991; Vasey & Dadds, 2001). Similarly to the BPS model, the developmental psychopathology perspective posits that external (familial, peer) and internal (biological, cognitive) factors can contribute to the outcome of youth anxiety (Wood et al., 2003). Two concepts guide research from this perspective. The concept of multifinality proposes that a single risk factor can have multiple outcomes



(such as the development of anxiety disorder, healthy adaptation, or the onset of another psychological problem). The second concept, equifinality, suggests multiple pathways and factors can lead to the development of an anxiety disorder. Context plays a key role in considering how risk factors may lead to an anxiety disorder in youth. It recognizes that similar genetic traits, parenting behaviors, youth anxiety symptoms and other factors may reinforce or influence each other (Wood et al., 2003).

Overall, the BPS model and developmental psychopathology perspective offer a more comprehensive, systemic etiological model beyond a purely cognitive model. These perspectives incorporate the multiple influences that affect the contributions of attachment, temperament, and cognition on the development of youth anxiety disorders. The interaction of these vulnerabilities makes a youth more prone to perceive threat and also have difficulty coping with their arousal, termed affect modulation by Bradley (1990). However, the larger social environment, particularly the family, also continually modulates and influences these components.

The developmental psychopathology model will serve as the theoretical basis for this study. Developmental psychopathology recognizes the multifaceted influences that may lead to anxiety development or to other more adaptive outcomes. It acknowledges the complex interaction between genetic, biological, and cognitive factors that are also shaped by the social environment. While a particular constellation of these factors may represent developmental pathways with probabilistic outcomes for an anxiety disorder, this theory also recognizes other factors may serve as protective or risk factors which lead to other endpoints. Utilizing a developmental psychopathology perspective, this study

will include a particular grouping of genetic, social, and cognitive factors that are suggested possible influences in the development and maintenance of youth anxiety. Specifically, the hypothesized model proposed in this study will account for these probable influences through an examination of the role of family factors in the potential development of youth anxiety, and whether these influences are mediated by youth coping strategies.

### **RISK FACTORS FOR YOUTH ANXIETY**

A number of individual, family, and larger environmental factors have been implicated as potential risk factors for the development of an anxiety disorder in youth (Graczyk, Connolly & Coapci, 2005). As the focus of this study is on family factors that contribute to youth anxiety, a more comprehensive discussion on family factors will occur in another section. Individual and broader environmental influences are briefly presented here.

A number of factors have been implicated as potential influences associated with youth anxiety, although research has not produced definitive associations. Experiencing a greater number of major life events (Benjamin, Costello, & Warren, 1990; Goodyer, Wright, & Altman, 1990; Kashani & Orvaschel, 1988), having a behaviorally inhibited temperament (Biederman et al., 1990; Kagan, & Reznick, 1984, 1984; Kagan et al., 1990), reaching a certain cognitive developmental level (Last et al., 1996; Rapee & Heimberg, 1997; Vasey, 1993), and experiencing discrimination as part of a racial or ethnic group (Gaylord-Harden & Cunningham, 2009; Landrine & Klonoff, 1996; Pearlin, 1999) have found mixed results as influences on youth anxiety. For a more

comprehensive review of the mixed evidence for these factors please refer to Appendix C. Many of these factors vary by anxiety disorder and have mixed evidence as mechanisms for the onset of youth anxiety disorders.

Gender differences have been consistently found in the prevalence and expression of anxiety disorders. In adult populations, females consistently have higher rates of anxiety than males (Craske, 2003), with the exception of similar rates in OCD (Clark, 2004). In youth samples, higher prevalence rates in girls than boys have replicated adult gender differences (Lewinsohn et al., 1998; Yonkers & Gurguis, 1995). Across ages, girls consistently report higher levels of overall anxiety, fears, and sensitivity compared to boys (Chaplin, Gillham, & Seligman, 2009), making them vulnerable for developing an anxiety disorder (U.S. Department of Health and Human Services, 1999). Girls also have shown to develop anxiety disorders at a faster rate than boys, and tend to have higher levels of anxious behavior and internalizing symptoms (Chaplin et al., 2009; Crocetti et al., 2009; Lewinsohn et al., 1998).

Prevalence rates for specific anxiety disorders also indicate gender differences. GAD is also more frequently diagnosed in girls than in boys (Bowen et al., 1990; McGee et al., 1990). Like with GAD, higher rates of SAD has been found with girls in some studies (Bowen et al., 1990; Costello, 1989; Last, Francis, et al., 1987; March, Parker, Sullivan, Stallings, & Conners, 1997), whereas others report equal prevalence rates (Francis, Last, & Strauss, 1987; Last, Perrin, Hersen, & Kazdin, 1996). Girls with SAD are particularly at risk of developing panic disorder and agoraphobia during childhood or as an adult (Biederman et al., 1993; Moreau & Follet, 1993). While Last and colleagues

(1992) found that 44.3% of a sample with SoP were girls, Beidel and Turner (1992) found girls comprised 70% of their sample of SoP youth. Sampling issues may explain this discrepancy. Community samples tend to have a higher representation of girls than boys with SoP, whereas clinical samples tend to find fewer differences (Beidel & Morris, 1993; Essau, Conradt, & Petermann, 1999; Schneier et al., 1992).

Culturally sanctioned norms about gender-role appropriate behaviors may explain gender differences in the anxiety rates and symptoms. Children who scored higher on a measure of masculinity reported lower levels of fearfulness, which corroborates with adult studies in which higher reported levels of femininity were associated with more fearfulness, and higher levels of reported masculinity were linked to less fear endorsement (Ginsburg & Silverman, 2000). The higher rates of girls diagnosed with an anxiety disorder over boys has also been explained by the use of different coping strategies (Byrne, 2000), discussed in a later section.

In sum, a number of potential individual, family, and larger environmental risk factors for youth anxiety have been investigated. Many factors have resulted in ambiguous findings about their effects. Gender, however, has demonstrated consistent ties with youth anxiety. Prevalence rates of anxiety are higher for girls than boys (Lewinsohn et al., 1998; Yonkers & Gurguis, 1995), with a more rapid onset than boys and endorsements of more anxious and internalizing symptoms (Chaplin et al., 2009; Crocetti et al., 2009; Lewinsohn et al., 1998). For this reason, research on youth anxiety frequently takes gender into account (e.g., Kendall et al., 2008; Simpson, 2011; Weems et al., 2001)

## **SUMMARY OF YOUTH ANXIETY**

Anxiety disorders in youth are one of the most prevalent disorders in youth today (Costello & Angold, 1995; Kessler, Chiu, Demler, & Walters, 2005). Anxiety disorders are immensely costly for individuals and society because of the negative outcomes tied to anxiety disorders (Davidson et al., 1993; Essau et al., 2000; Last et al., 1999) and the substantial financial burden of treatment (Greenburg et. al, 1999). The negative individual effects and financial burdens of treatment provide further evidence for the need for continued research on the influences of youth anxiety onset and perseverance in order to develop effective treatment programs.

The conceptualization and measurement of youth anxiety has expanded from the stress literature and from anxiety models (Endler & Parker, 1990; Lazarus & Folkman, 1984). Anxiety has been examined through biological, behavioral, and cognitive perspectives. These frameworks have investigated the physiological, psychological, and behavioral components and symptoms of anxiety that emerge in response to a perceived distressing situation or object. The tripartite model of anxiety (Lang, 1968), a cognitive model endorsed heavily in the past thirty years, provides as a comprehensive theory that emphasizes the cognitive, behavioral, and physiological elements of anxiety. The tripartite model of anxiety also details the appraisal and reactions of an individual when facing a perceived stressor and will serve as a foundation for conceptualizing youth anxiety and youth coping in this study. Various methods of assessments with adequate validity and reliability have been developed that assesses across these symptom domains in youth (e.g., MASC; March et al., 1996; ADIS-C/P; Stallings et al., 1994). Research

and clinicians often use validated self-report measures such as the SCARED (SCARED; Birmaher et al., 1997) and comprehensive interviews such as the ADIS for DSM-IV (ADIS for DSM-IV:C or P; Silverman & Albano, 2004).

A number of biological, psychological, and environmental factors have been related to the onset of anxiety disorders in youth. While mixed results were indicated for major life events, temperament, and race and culture have, consistent differences have been found in the onset and persistence of youth anxiety disorders across gender. The developmental psychopathology (Cicchetti & Cohen, 1995; Masten & Braswell, 1991; Vasey & Dadds, 2001) model provides an integrated, comprehensive etiological model that account for the multiple influences on youth anxiety comprising the present study.

#### **FAMILY FACTORS AND YOUTH ANXIETY**

Anxiety disorders tend to aggregate in families (Skre et al., 2000; Turner, Beidel, & Costello, 1987), emphasizing the need to elucidate the family factors that play a role in the generational transmission of anxiety. Not surprisingly, research on child psychopathology has increasingly recommended examining youth psychological disorders within the context of family background factors and interaction patterns (Cumming, Davies, & Campbell, 2000). Within the larger framework of the developmental psychopathology models, genetic and family environmental influences can serve as protective or instigating factors in the development of youth anxiety.

The development and maintenance of youth anxiety is likely influenced by a complex interaction between a genetic vulnerability and aspects of the family environment. While inheriting a genetic predisposition for anxiety is one family-related

risk factor for anxiety, the family context also provides a rich learning environment that can influence the development of affect regulation and anxiety development. Social learning theory (Bandura, 1973) suggests that youth learn from modeling, observation, and imitation from others in their environment (Ormand, 2000). Behaviors, and the resulting beliefs and expectations, are shaped by positive reinforcement and punishment. Kendall and colleagues (1994) emphasized the importance of the learning process and influence of models in a child's environment. The family serves as a microcosm of rules and roles from which a child builds expectations and attributions of appropriate behaviors, emotions, and cognitive interpretations (Kendall, 1985; 1991). Social – referencing theory (Klennert et al., 1983) posits that youth look to others for clues as to how to respond to novel or unfamiliar situations. This tendency may partially explain why there is a higher concordance of child and maternal anxiety in younger children, as children learn through the emotional reactions by their parents (Barrios & Hartmann, 1988). However, this finding also illuminates the challenge in parsing out the separate influences of genetic and family environmental experiences on youth anxiety. An examination of the biological and family environmental elements related to youth anxiety and their relationships between each other are discussed in the following sections.

### **Family biological factors and youth anxiety**

Family studies have found significant evidence that anxiety disorders tend to run in families. Estimates of heritability range from 30-40% across all anxiety disorders (Barlow, 2002). Youth who have a parent with an anxiety disorder are over seven times more likely to develop an anxiety disorder than youth who do not have a parent with an

anxiety disorder (Turner et al., 1987). Based on family history information and interviews with children, siblings, and parents, Last and colleagues (1991) found that 35% of children with anxiety disorders also had close relatives with an anxiety disorder, compared to 16.3% of family members of children without an anxiety disorder.

Twin studies have also examined the biological impetus for the onset of an anxiety disorder in youth. Torgersen (1983) found that compared to dizygotic twins, monozygotic twins were two to three times more likely to both have anxiety disorders. Kendler and colleagues (Kendler et al., 1992; Kendler, Karkowski, & Prescott, 1999) assessed 2,163 female twins for panic disorder, phobias, and GAD. Results from these studies indicated heritability estimates of 30%-39% for panic disorder. Finally, a twin study conducted by Skre and colleagues (2002) on the concordance of social phobia estimated the heritability of social phobia to be .47, which leaves a significant portion of the variance unexplained.

While genetic factors explain a portion of the variance of contributors to the development of youth anxiety disorders, environmental factors comprise some of the additional, unexplained variance. Kendler and colleagues (1999) estimated between 40-60% of the variance in the development of anxiety disorders in twins was attributed to environmental effects. After a series of twin studies finding concordance between panic disorder in parents and behavioral inhibition in children, Rosenbaum and colleagues (1991) suggested that inheriting a genetic vulnerability is a risk factor for developing an anxiety disorder, but environmental factors instigate the onset. Rosenbaum and colleagues (1991) concluded that it is the interaction between biological and



environmental features that explains the manifestation of anxiety disorders in youth (Rosenbaum et al., 1991). Although other environmental influences can contribute to the onset or prevention of youth anxiety disorders, the family milieu provides a dynamic environment in which multiple influences can provide additional explanation for the family aggregation of anxiety disorders.

### **Family environmental factors and youth anxiety**

#### ***Parental styles and behaviors***

Parental styles and practices have been a primary focus in the etiology of youth anxiety. High degrees of parental control (Dumas, LaFrenier, & Serketich, 1995; Hudson & Rapee, 2002; Siqueland et al., 1996), and protection (Last & Strauss, 1990; Leib et al., 2000) and low levels of warmth (Rapee, 1997; Whaley et al., 1999) have demonstrated predominantly consistent evidence as potential contributors to youth anxiety. Parental over-control is defined as excessive involvement and regulation of a child's routines, thoughts, and feelings by a parent. Overprotection, defined as excessive parental control of the environment in attempts to minimize stressful experiences for the youth (Parker, 1983), can consist of restrictive or protective behaviors without warranted cause. Both over-control and overprotection threaten a child's sense of autonomy and ability to regulate their own emotions (Barber, 1996; Steinber, Elmer, & Mounts, 1989; Schwarz, Barton-Henry, & Pruzinsky, 1985). Perceptions of a lack of mastery creates heightened anxiety due to a cognitive bias that a child cannot control external events or have the ability to moderate their reactions, leading to the development of anxiety symptoms (Chorpita & Barlow, 1998; Gruener et al., 1999; Siqueland et al., 1996). Parental

acceptance, or general warmth and responsiveness by a parent and emotional and behavioral involvement, is a defining element in the quality of attachment and has also been associated youth anxiety levels (Maccoby, 1992; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Acceptance of children's range of affective expression, as opposed to criticizing or dismissing feelings, is thought to foster child's ability to regulate their emotions as they learn through trial and error to tolerate anxiety and other negative emotions (Gottman, Katz, & Hooven, 1997). For a more in-depth discussion of research detailing the findings on parental control, protection, and warmth, refer to Appendix D.

More relevant to the multiple influences and interactions associated in the present study, Parker (1983) implicated the combined categories of parental warmth and protection, deemed care and protection, respectively, as pivotal in the development of youth anxiety. Parker's (1983) model of parental behaviors and anxiety suggests that a specific formula of the parental acceptance/warmth/responsiveness and protection contribute to anxiety disorders. Parker (1983) posited that the combination of high protection (overprotection) and low care along these two dimensions, deemed "affectionless control," were most likely to contribute to a youth feeling a lack of control or confidence in manipulating the environment and also do not have the support available to assist them, resulting in anxiety (Chorpita & Barlow, 1998, p. 12). Parker (1979) found evidence of consistently high rates of overprotection and low rates of reported parental care in anxious patients, as reported by fifty clinical patients when compared to controls. Dumas, LeFrenier, and Serketich (1995) and Silove and colleagues (1991) also found a

similar pattern of high control and low responsiveness in mother-child dyads where the child exhibited elevated anxiety.

### ***Family functioning***

Family functioning, or a family's ability to manage multiple spheres of operation, is tied to psychological outcomes in youth, particularly anxiety (Chapman & Woodruff-Borden, 2009; van Ort et al., 2010). Family dysfunction has also been tied to persistent anxiety in adolescents in longitudinal studies (von Ort et al., 2009; van Ort et al., 2010). Similar patterns of parental styles and behaviors associated with youth anxiety have also been assessed in the larger family sphere as particular domains of family functioning.

Stark and colleagues (1990) assessed multiple domains of family functioning as reported by maternal reports and anxious, depressed, and comorbidly depressed and anxious youth. The domains of relationships, values, and system maintenance were assessed among family members. In contrast to control groups of non-clinical youth, all groups experienced greater dysfunction, more conflict, more enmeshment, less support, less youth participation in decision making. The unique perceptions of family environments was predictive of the different profiles, with children endorsing both anxiety and depression varying more from those youth with anxiety alone or from between the anxious and depressed only participants. Stark and colleagues (1990) suggested this difference may be attributed to a link between greater dysfunction and symptomatology, although a causal direction was not indicated. One limitation cited by the researchers was that parental psychopathology was not included.

In a more recent study, Chapman and Woodruff-Borden (2010) also found family functioning to be related to anxiety levels. Family functioning, measured by the domains of problem solving, communication, affective involvement, roles, general functioning, and affect, was associated with anxiety levels, with lower levels of family functioning related to higher levels of anxiety. Interestingly, family functioning appeared to have a stronger effect for Caucasian families than for African-American families. Chapman and Woodruff-Borden (2010) suggest this may be due to some of the indicators in the latent variable of family functioning had different loadings or importance across groups. One concern with the study by Chapman and Woodruff-Borden (2010) is their sample was used with young adults with a retrospective measure of the Family Assessment Device (FAD; Epstein et al., 1983). A retrospective measure may not be as reliable as measures that account for present functioning, as evidenced by the low to moderate reliabilities found in both samples. The findings suggest the need for future studies to analyze the particular aspects of family functioning that are related to anxiety across diverse samples with present reporting methods.

A concept related to both control and warmth at the family level, family cohesion is an aspect of family functioning that has been extensively examined in regards to child anxiety. Family cohesion is defined as the level of connection and ability to communicate, solve problems, and work together (Cuffe et al., 2005; Simpson, 2011; Tolan et al., 1997). Studies have shown that families of youth with anxiety disorders are characterized by less adaptive cohesion levels (Cummings et al., 2000; Joneson, LaVoie, & Mahoney, 2001). Families with high degrees of emotional closeness (also known as

enmeshment; Bowen, 1966; 1978) tend to have over-involved, controlling parents who also model anxious and avoidant behaviors (Barrett, Rapee, et al, 1996; Hudson & Rapee, 2002; Wood et al., 2003).

A family's communication ability has also been implicated in contributing to youth anxiety. Decreased levels of amount and depth of communication between parents, parents and children, and between siblings can result in a lower sense of control over one's life, poor emotional regulation, and a negative cognitive style (Shorrt & Spence, 2006). Over time, youth may feel their parents and siblings cannot impart the skills and support he or she needs to manage stress, resulting in a youth avoiding discussion or seeking support (Thoits, 1995). The level of family cohesion may also influence communication amongst family members, an important vehicle for youth to receive support and foster beliefs about potential threatening situations. Less and overly cohesive families tend to display fewer effective communication skills (Thoits, 1995), may be overprotective and create dependency, and not be able to provide appropriate verbal support (Bernstein et al., 1999).

### ***Family accommodation***

Specific family behaviors related to cohesion, control, and overprotection, such as accommodation, may also be implicated in youth anxiety. Accommodation refers to the ways in which family members, primarily parents, adjust individual and family behaviors, routines, and activities to help reduce or avoid anxiety in particular situations (Calvocoressi et al., 1995). Accommodating behaviors, such as providing reassurances, participating in rituals, and helping a child avoid a distressing situation, have been almost

exclusively examined in families with a child with obsessive-compulsive disorder (e.g., Flessner et al., 2011; Storch et al, 2007; Waters & Barrett, 2003). Accommodating behaviors specific to particular anxiety disorders include speaking on the phone for a youth with SAD, avoiding specific places or objects for phobic youth, or parents avoiding leaving the house for youth with separation fears.

Despite evidence for its negative impact on anxiety levels in studies of OCD, only one very recent such study has assessed parental modifications of behavior to mitigate their child's anxiety (Lebowitz et al., 2013). In a groundbreaking study Lebowitz (2013) and colleagues found significant positive relationships between parental accommodation and youth anxiety levels in both clinically anxious youth and youth with sub-clinical levels of anxiety. Nearly all parents (97.3%) of youth with clinical and sub-clinical levels of anxiety reported some form of family accommodation of anxiety, although this caused considerable distress for a majority of parents (70%) to do so. No differences in accommodation were found by race, age or socioeconomic level. Differences in accommodation were found by gender, with a significantly higher degree of accommodation occurring in parents of anxious girls (Lebowitz et al., 2013). This study also assessed the psychometrics of the Family Accommodation Scale, Anxiety (FASA; Lebowitz, 2012), demonstrating reliability and validity for a two-factor model that measures the participation in symptoms and also behavioral modifications parents make to accommodate a child's anxiety. Additional studies using the FASA would provide further evidence of its utility and provide information on the role of accommodation in youth anxiety.

### ***Parental anxiety***

Parental anxiety has a strong connection with the onset and perseverance of youth anxiety disorders beyond the genetic predisposition discussed previously (Barlow, 2002; Cloniger et al., 1991; Pauls & Slymen, 1983; Harris, Notes, Crow, & Chaudery, 1983). Parents with their own anxiety have also been found to be more likely than non-anxious parents to exhibit many of the familial risk factors of parental behaviors and family dysfunction implicated in the development of youth anxiety.

Parents with psychopathology are more likely to model anxious behavior and their emotions. Anxious parents tend to openly discuss and display their anxiety in front of their children (Fisak & Grilss-Tquechel, 2007). Anxious mothers who displayed fear with ambiguous stimuli had children who subsequently displayed fearful expressions and avoidance (Barrios & Hartmann, 1988). Parents who describe events as uncontrollable or dangerous, encourage catastrophic thinking, and negate or extinguish coping and problem-solving strategies put a youth at risk for an anxiety disorder (Capps & Ochs, 1995; Whaley et al., 1999).

Observational studies have also indicated the multiple ways parental anxiety can influence youth outcomes. Whaley, Pinto, and Sigman (1999) assessed the interactions between 7- to 14-year-olds and their anxious mothers. Anxious mothers were found to be less warm, less positive, less likely to grant autonomy, and more critical and catastrophizing of events in comparison to non-anxious mothers in the control group. These behaviors were predictive of youth anxiety disorder in their sample (Whaley et al., 1999). However, this study alludes to the difficulty in ascertaining directionality in

observational studies. From this study, it is challenging to determine whether a child's anxiety predisposes a mother to limit autonomy to accommodate her child's anxiety, or whether it is the mother's behaviors that foster and reinforce the manifestation of anxiety in youth. It likely indicates how the complex interaction between anxiety vulnerabilities, anxiety status, and behaviors drive and reinforce the expression of anxiety in families.

Parental anxiety can affect a number of other family factors that influence the onset of youth anxiety. Parents with psychopathology may be more distracting or unavailable emotionally or physically due to their mood struggles, affecting both communication and family cohesion (Essex et al., 2003; Victor et al, 2007). Parents suffering from anxiety themselves may also be unable to provide or match the appropriate level of support a youth struggling with anxious feelings requires. Parental distress may also change their level of involvement in a child's life, either becoming overprotective of youth or disengaging due to decreased mood. Parents struggling with anxiety may also not have adequate social supports for themselves, and may also lack models for how to offer the right support to their children, which can worsen a youth's symptoms (Leech et al., 2006).

A study of 14-18 year olds provides evidence for the contributions of parental psychopathology and family dysfunction on youth anxiety disorders. As measured by the Family Assessment Device (Epstein et al., 1983), van Ort and colleagues (2009) found that while parent psychopathology was associated with the onset of an anxiety disorder in adolescents, an interaction between family dysfunction with parent psychopathology was predictive of the maintenance of social phobia. Aspects of poor family functioning,



namely communication, affective over-responsiveness, and affective over-control, were associated with the maintenance of social phobia. Van Ort and colleagues (2009) suggest that while family functioning may not be directly responsible for the onset of psychopathology, it may influence the persistence of a clinical disorder, consistent with findings by Tamlin and Goodyer (2001) with depression.

Although the extant literature base on the connection between parental psychopathology and youth anxiety is fairly robust, limitations and gaps exist. The predominant use of relatively small, racially homogenous samples is one limitation of many studies (Turner et al., 1987; Whaley et al., 1999). Often studies only assess maternal anxiety and do not assess paternal anxiety (Turner et al., 1987; Whaley et al., 1999), or had a limited assessment of anxiety beyond a general measure of parental psychopathology (Liber et al., 2008; Simpson, 2011). From this review, it appears that parental anxiety influences the onset of youth anxiety, and also may have other indirect effects on anxiety development via other family factors such as communication, involvement, and accommodation.

Overall, the family environment plays an important role in the development of youth anxiety. Prior research, however, is limited by its use of retroactive reporting by adult offspring (Laria et al., 2002), and a lack of inclusion of the diagnostic status of both parent and child (Whaley et al., 1999; Woodruff-Borden et al., 2002). Reliance on child self-reports on their perceptions of parenting practices, as discussed in Rapee's (1997) review, is another concern. The degree to which parents assist a child in avoiding anxiety-provoking situations, known as family accommodation, have not been examined

in an etiological model of youth anxiety. Masia and Morris (1988) argue for continued research delineating the particular environmental factors, generalizing to family contributors that lead to youth anxiety in order to prevent their onset.

## **YOUTH COPING**

### **Coping and anxiety**

The concept and study of anxiety have been consistently tied to coping, which is broadly defined as the human ability to adapt to both internal and external forces (Lazarus & Folkman, 1984). In both theoretical and treatment perspectives, coping strategies are one of the main mechanisms by which an individual manages anxiety-provoking situations. Lang's (1968) tripartite model of anxiety acknowledges coping as an individual's responses to a perceived threat. Furthermore, Beck's cognitive model of anxiety (1982, 2002) suggests that anxiety arises out of negative cognitive schemas of threat and vulnerability, which reinforce a negative appraisal of one's own coping resources and efficacy in handling the situation and one's ensuing emotions. Negative evaluations of one's coping resources and abilities subsequently reinforce anxious schemata of vulnerability and can lead to continued avoidance of the fearful stimuli by anxious youth (Beck, 2002).

Evidence-based treatments for youth anxiety often explicitly teach coping strategies as a primary intervention. Coping strategies identified as maladaptive (those that do not lead to short- and long-term anxiety reduction) when used consistently are replaced with more appropriate strategies. Coping strategies may also be directly taught if a child lacks a coping repertoire. Youth review coping techniques and are encouraged to

rehearse specific strategies (such as distraction, seeking support, and problem-solving) that have been shown to reduce and improve anxiety symptoms in the short- and long-term (Kane & Kendall, 1989). The use of other strategies (such as avoidance), that when used consistently have been found to only temporarily relieve feelings of anxiety and reinforce anxiety in future situations, are replaced by a broader, more active and adaptive cache of coping strategies (Ebata & Moos, 1991; Manassis, Mendlowitz, & Menna, 1997; Wadsworth & Berger, 2006). Interventions incorporating coping strategies have been shown to improve anxiety levels during and after treatment in many Cognitive Behavioral Treatment programs (Kane & Kendall, 1989; Lazarus & Folkman, 1984).

As coping strategies are an important component in both the understanding of anxiety and as a point of intervention in treatment of anxious youth, continued research on the coping strategies youth use, their outcomes, and factors that influence the strategies youth employ to cope is critical. Towards this end, the understanding and study of coping strategies has evolved from theoretical conceptualizations and assessment development for adults into more recent and relevant dimensions and measures appropriate for children and adolescents.

### **Stress, anxiety, and coping**

Coping as a theoretical construct and measurable variable has developed in the larger body of work on stress and anxiety discussed in the previous section and in Appenidx B. The expanded view discussed by both Endler and Parker (1990) and Lazarus and Folkman (1984) culminated in emphasizing the connection between stress, anxiety, and coping. In both transactional models, perceived stressors motivate efforts to

manage both behavioral demands and emotional reactions elicited. According to Lazarus and Folkman (1984), stress occurs when “there is an imbalance between demands and resources” and “when pressure exceeds one’s perceived ability to cope.” (Lazarus & Folkman, 1984, p. 178) The perceived inability to cope aligns with Beck’s cognitive theory of anxiety (Beck, 1982, 2002) as well as Endler and Parker’s (1990) model, in which the state of anxiety emerges out of this dual detection of threat and inability to control the associated vulnerability and emotions.

Endler and Parker’s (1990) and Lazarus and Folkman’s (1984) evolved understanding of stress and anxiety highlights an important distinction between two aspects of coping: coping resources and coping strategies. McCarthy (in print) suggested the general difference between these components is that coping resources are one’s ability to deal with potential threats, while coping strategies are the specific efforts enacted once a stress has been experienced. More specifically, coping resources are the physical, psychological, and social assets that help manage demands (Matheny et al., 1987; Perlin & Schooler, 1978). The most examined personal coping resources have been social support, a sense of control or mastery over life, self-esteem, hardiness, a sense of coherence, and Type A characteristics such as impatience and hostility (Cohen & Edwards, 1989; Rodin & Salovey, 1989). Matheny et al. (1986) suggested coping resources are further differentiated in their ability in preventing or combating stress. Combative resources focus on situations in which one is already facing a stressor; however, having appropriate preventive coping resources has been shown to reduce the number of events that are interpreted as threatening, in turn reducing the frequency of

experiencing stress (McCarthy, Lambert, & Brack, 1997). The coping resources available are also believed to affect which coping strategies are selected in response to a stressor and their efficacy in reducing stress (Folkman & Lazarus, 1984).

Meanwhile, coping strategies are the behaviors that are enacted after experiencing a stressor (Perlin & Schooler, 1978). Specifically, coping strategies are the behavioral and cognitive attempts to manage situational characteristics that are deemed as stressful or overwhelming one's ability to accommodate (Lazarus and Folkman, 1984). Examples of behavioral and cognitive strategies include telling yourself everything will be alright, doing something fun and distracting, and seeking support. Lazarus and Folkman (1984) contrast coping strategies from automatized adaptive behavior, suggesting coping is an effortful process, whereas automatized behaviors are not intentional, and occur through the learning process instead of acting.

Coping strategies are further distinguished from the related concept of coping styles, which are patterns and preferences for meeting demands, or general coping behaviors enacted for stressors across situations, such as be active or passive, withdraw or approach, deny or confront (Menaghan, 1989). While these terms are often used interchangeably (Endler & Parker, 1999), theoretical models by Menaghan (1989) and Endler (2009) posit that an individual's coping styles are jointly influenced by societal, situational, and individual characteristics. General coping styles and situational appraisal may shape which specific coping strategies are selected (Menaghan, 1989). Although knowledge of youth general coping styles can be useful, an examination of coping styles, coping strategies, or both depends on the nature of the research question and the

terminology used. Looking at frequency of coping strategy use provides a full picture of the multiple strategies a youth may use, while coping styles provides a general trend that may further elucidate the relationship between coping tendencies and outcomes. The numerous coping taxonomies add to the confusion between coping dimensions and broad categories of coping styles, of which coping strategies often fit into more than one classification. There is also a dearth of empirical evidence examining the development and relationship between specific strategies and coping styles. (Compas et al., 2001). Additional empirical examination could aid in understanding the process of coping development and disentangle coping styles and coping strategies. As with a majority of prior research, in this study youth coping is conceptualized as specific strategies enacted in times of stress that also related to larger coping dimensions validated in previous empirical studies (i.e., active and avoidant coping).

### **Adult coping models**

A number of coping models based on adults have emerged in conceptualizing and measuring the strategies individuals employ when facing stressors. Folkman and Lazarus (1984) proposed coping strategies are seen as part of a cognitive appraisal process, in which an individual primarily evaluates the threat of an event and secondarily judges what should be done, attempts a strategy or series of strategies, and evaluates the success of the actions (Lazarus & Folkman, 1984). In Lazarus and Folkman's (1984) model, coping consists of the action performed to meet one of two goals: resolving the relationship between the self and the environment (problem-focused) or towards managing the emotions that result from a stressor (emotion-focused). Later models

added the third goal of behavior regulation practices that attempt to control emotion-driven behaviors (Eisenberg et al., 1999; Skinner & Wellborn, 1994).

A different conceptualization of adult coping strategies categorizes coping strategies as either approach and avoidant strategies. Approach strategies are defined as cognitive, emotional, or behavioral attempts directed towards a threat or that deal directly to resolve the problem, while avoidant strategies are attempts to deny or mitigate threat, or to get away from the situation (Billings & Moos, 1981; Ebata & Moos, 1991; Roth & Cohen, 1986). The terminology active versus passive coping has also been used with similar conceptualizations as approach and avoidant, respectively (Billings & Moos, 1981).

### **Youth coping models**

Research on youth coping initially focused on applying adult models to youth samples before generating models with a developmental perspective. Weisz and colleagues (Band & Weisz, 1988; Rudolph, Dennig, & Weisz, 1995) developed perspectives on coping in children and adolescents that resembled the goal-directed model of Lazarus and Folkman (1984). The views of Weisz and colleagues contrasted with those of Lazarus and Folkman by focusing on how coping efforts sustain, change, or relinquish the control a child or adolescent has over the environment and/or the self. In this model by Weisz and colleagues, an individual uses primary control coping when utilizing efforts to directly affect circumstances, whereas he or she would employ secondary control coping when he or she adjusts oneself to adapt to the environment. Finally, a youth demonstrating relinquished control coping would not be using any

method of coping, or would exhibit volitional attempts to avoid the stress source or one's emotional response to the distressing situation (Rothbaum, Weisz, & Snyder, 1982; Rudolph et al., 1995). Although using slightly different terminology but applying parallel concepts of focus on control, coping in youth has also been similarly classified by others as primary, secondary, and disengagement coping (Connor-Smith et al., 2000; Wadsworth & Compas, 2002).

Ayers and colleagues (1996) assessed how well problem- and emotion-focused coping (Lazarus & Folkman, 1984) and passive versus active coping (Billings & Moos, 1981) models fit with the coping strategies endorsed by fourth through sixth graders. Using a theoretically-based approach, confirmatory factor analyses suggested that a four-factor model of coping strategies for youth involving active, distraction, avoidant, and support seeking aligned better with the data than the two-factor models. However, Sandler (2001) later found support for a two-factor active and avoidant coping structure from the subsets of strategies Ayers et al. (1996) employed that varied slightly from passive versus active strategies in adults proposed by Billings and Moos (1981). The analyses of Ayers and colleagues (1996) and Sandler and colleagues (2001) suggest that youth may utilize different forms of coping and warrant a different classification system.

Despite different terminology across both adult and youth models, there is conceptual overlap in coping strategies typologies that also reveals difficulty in classification. Strategies that attempt to directly control the stressor can be deemed problem-focused, approach, active, or primary control strategies (Simpson, 2011). Meanwhile, stressful events that cannot be controlled or managed directly involve



accommodation or adaptation by the individual, which can be conceptualized as particular problem-focused, approach coping, and secondary coping strategies (Ebata & Moos, 1991; Lazarus & Folkman, 1984; Roth & Cohen, 1986; Wadsworth & Berger, 2006). Disengagement strategies that remove an individual behaviorally, emotionally, and cognitively from a stressor, such as some emotion-focused and avoidant coping strategies, indicate a perceived lack of control over the environment or one's emotions about the stressor (Ebata & Moos, 1991; Roth & Cohen, 1986). Even along the broad dimensions of the target of coping and perceived controllability, classifying specific strategies into specific types can be problematic and has made comparing empirical results across studies challenging.

Overall, there are intersections across various conceptualizations of adult and youth coping strategies that provide a generalized understanding of coping strategies. This is particularly true when focusing on the different goals and effectiveness of the strategies employed in each context. First, a strategy is employed because it is purposeful at a specific time and context (Patterson & McCubbin, 1987), which involves threat detection, emotional appraisal, decision-making, and performance of a strategy. The outcome of an employed strategy is deemed effective if it aids in managing the stressor in constructive ways (problem-solving or seeking understanding) or enables the person to control their cognitive and emotional reactions (distraction or challenging thoughts) in both the short and long term. Strategies that do not attempt to enact control (such as denial or avoidance) can aid in removing immediate distress. However, consistent use of

avoidance or disengagement in controllable circumstances does not allow a youth to develop other coping strategies that may be more effective.

### **Assessment of youth coping strategies**

Youth coping strategies measures vary in the prompts, response types, and modalities used. Four main methods have been primarily used in the assessment of youth coping with stress. These are self-report questionnaires, semi-structured interviews, observations, and the reports of others (parents, teachers, and peers).

Measures of youth coping strategies elicit responses to either specific life events or to general, everyday stress. Literature on coping strategies suggests that everyday stressors are as equally likely as major life events to negatively affect psychological functioning (Compas, 1989). Moreover, Kliever (1991) suggested that learning how youth manage everyday hassles informs the coping resources they have available when facing major life events. Reflecting this belief, increasingly more measures assess coping strategies in response to multiple general categories of stressors, such as peer, academic, family, or financial distress. Assessing distress after natural disasters and pediatric illnesses and procedures deviate from this norm for very specific research questions (Compas et al., 1992).

Measures also vary whether they use retroactive or hypothetical reporting. Research has shown that children struggle to remember actual coping strategies related to events in the past without prompting (Compas et al., 2001). A concern with hypothetical reporting is that youth may endorse strategies they do not actually employ, or have not experienced a specific event and cannot predict how they would act (Thoits, 1995).

Fewer semi-structured interviews have been specifically developed for assessing youth coping, with the coding of responses generally based on theoretically-defined broad dimensions of coping, as opposed to specific categories (Band & Weisz, 1990; Compas et al., 1996). Interviews used to garner a representation of coping strategies in youth have been criticized for underrepresenting the full array of strategies used and their frequency (Compas et al., 2001). Relying on youth to be cognizant of and also elicit the strategies used in both hypothetical and actual situational stressors has been found to reduce the number and variety of strategies reported, particularly if prompts are not given (Compas et al., 2001).

### ***Observations***

Observational methods of assessing youth coping are comparatively few and have been used primarily in children's coping with medical procedures. Observational methods have demonstrated adequate reliability and show promise in capturing the process and sequences of children's responses to specific stressors and situations (Compas et al., 2001). However, observational methods do not allow one to assess cognitive coping processes. Instead, observation and interview methods have been used to validate or supplement the information gathered on coping through questionnaires.

Coping diaries are a promising form of coping strategy measurement that have been used more with adults to follow changes in stress, mood, physical symptoms and coping (Bolger, 1990; Folkman & Lazarus, 1984; Verbrugge, 1984). With a coping diary, one tracks stressors, the coping strategies they used, often whether they were effective in the situation, and their resulting mood. They can be used daily or at proscribed intervals.

Coping diaries offer insight into coping sequences and shifts made of coping strategies and styles under varying conditions (Compas et al., 2001). Coping diaries have limitations in the ability for youth to easily use them, or are too developmentally advanced. Furthermore, like observations, they pose statistical challenges and rating subjectivity (Thoits, 1995).

### ***Questionnaires***

Self-report questionnaires are the most widely used measurement method of youth coping due to their efficiency and the number of measures that have demonstrated reliability and validity (Ayers et al., 1997; Causey & Dubrow, 1992; Ebata & Moos, 1991; Patterson & McCubbin, 1987; Spirito, Stark, & Williams, 1988). They also address many of the limitations of other measurement methods. Questionnaires have been found to meet youth's developmental abilities by providing them with prompts that aid in remembering and reporting specific strategies. Ayers et al. (1996) and Causey and Dubow (1992) both reported evidence that youth ages nine and above provided valid and reliable reports of their coping responses on self-report questionnaires, evidenced through construct validation using confirmatory factor analyses, and demonstrating high internal consistency and test-retest reliabilities. There is not strong evidence that younger children can accurately and reliably report coping strategies via questionnaires, explained by their still developing meta-cognitive awareness which allows for perception of cognitive coping strategies. In this case, researchers have suggested parent versions of checklists to supplement coping in younger children, and have demonstrated reasonable internal

consistency of parents' reports of their children's coping (Conner-Smith et al., 2000; Thomsen et al, 2000).

Despite the advantages of self-report measures of coping strategies in youth, such measures also have limitations and criticisms. Questionnaires vary in the dimensions of coping measured and how broadly they are defined. There has been debate about how inconsistencies in definitions of coping styles/strategies across measures has led to difficult comparisons between measures and studies (Compas et al., 2001). Questionnaires have also been posed on their effectiveness to represent the full range of potential coping responses, particularly emotion-focused and cognitive coping. Using hypothetical situations to assess coping responses also has been criticized as developmentally difficult for youth to supply their actual strategy use (Compas et al., 2001). Revised and new measures continue to improve self-report measures, but continued development of additional coping self-report measures is needed to continue to address these criticisms.

### ***Assessment development***

Many measures that assess coping strategies are based on adult and youth coping theoretical models. Initial measures of coping strategies consisted of self-report checklists that were based on the various theoretical constructs of coping, such as active and passive coping (Billings & Moos, 1981), or problem-focused and emotion-focused coping strategies (Folkman & Lazarus, 1984). These checklists were primarily developed for adults, with youth versions created later by adapting adult measures with more developmentally appropriate language and reading levels. However, youth versions

adapted from adult measures and adult models of coping did not take into account the potential for children, adolescents, and adult coping strategies to differ. Although helpful in initial measure development, adult questionnaires may not represent the full array of behaviors children utilize. Band and Weisz (1999), for example, found that 40% of youth's coping behaviors were not properly captured using the Adult Ways of Coping Scale developed by Folkman and Lazarus (1980). Measures of coping strategies for youth that align with theoretical constructs and include strategies more developmentally appropriate have been developed following such criticisms. (Causey & Dubow, 1992; Connor-Smith et al., 2000; 1992; Ebata & Moos, 1991). Despite using both a developmental and theoretical basis, researchers suggest that theoretically-based measures continue to fail to accurately categorize and elicit the full range of children's coping behaviors (Ayers et al., 1996; Compas et al., 2001)

Other coping measures have been developed from interviewing youth or through open-ended reports. Patterson and McCubbin (1987) focused on the specific developmental stressors and abilities of adolescent coping. Interviewing a youth community sample, Patterson and McCubbin identified ninety-five coping strategies adolescents reported in response to the main stressors they had experienced personally, how they managed family member's main stressors, and how they dealt with everyday hardship. Patterson and McCubbin validated support for twelve broad types of coping skills in adolescents by retesting additional samples on their measure, the A-COPE. Patterson and McCubbin's analyses also offered support for patterns of coping in adolescents, with a hierarchical organization of coping behaviors and patterns suggested

by Menaghan (1989). However, the A-COPE has not been assessed with pre-adolescents and younger children.

Youth coping measures have increasingly been developed from multiple sources. The COPE (Phelps & Jarvis, 1994) was developed from calculating internal consistency for adult subscales and by performing exploratory Principal Component Analysis. The Kidcope (Spirito, Stark, Gil, & Tyc, 1995) refined an earlier version (Spirito, Stark, & Williams, 1988) to include updated commonly reported strategies in the literature and in the COPE. Stark (unpublished) has further developed a new measure, updated from the Kidcope and the COPE, as well as through pilot studies. This measure, the Children's Coping and Emotion Regulation Skills and Attitudes Measure (CQ), has not yet assessed reliability and validity as a broad representation of how children and adolescents cope and regulate their emotions in response to stress. Many of these measures have come under criticism for lack of consistently solid psychometric properties and ambiguous categorization of coping strategies (Compas et al., 2001).

The Children's Coping Strategies Checklist-R1 (CCSR-R1; Ayers et al., 1996) is one of the most used and validated measures in the literature to assess youth coping strategies. The CCSC-R1 is a measure of coping behaviors for youth based on semi-structured interviews that captures the main coping models discussed (Ayers et al., 1996; Sandler et al., 2001; Wadsworth & Berger, 2005). Initially based on the models of coping by Lazarus and Folkman (1984), and Billings and Moos (1981), Ayers and colleagues found that a four-factor model of coping (active, distraction, avoidant, and support seeking) best fit the structure of youth's (ages 7-13) free responses in interviews. Several

subscales of this model also fit with primary, secondary, and disengagement strategies (Band & Weisz, 1988; Connor-Smith, 2000; Wadsworth & Compas, 2002) has been used in subsequent studies and served as the model of combining both theoretical and survey methods of measurement development. The measure has been reassessed and restructured and confirms the four-factor model (Program for Prevention Research, PPR, 2000). Although the CCSR-R1 has had fairly consistent results in many studies (Thorne, Anders, & Nordstokke, 2013; Sandler et al., 2001; Simpson, 2011) it may not be appropriate in all samples. Other factorial models have been proposed as more reliable with African-American and Dutch samples (de Boo & Wicherts, 2009; Gaylord-Harden et al., 2008). However, the updated CCSC-R1 (PPR, 2000) provides a broad-based conceptualization that integrates the theoretical models of youth coping.

### **Youth coping and psychological outcomes**

The specific coping strategy patterns utilized by a child or adolescent can have an impact on psychological outcomes (Lazarus & Folkman, 1984). Generally, the use of more adaptive strategies is consistent with positive psychological outcomes, while repeated maladaptive coping patterns are associated with poorer psychological effects. Ebata and Moos (1991) found an increased level of well-being was related to youth who employ more approach strategies and fewer avoidant strategies. Similarly, the use of active, problem-solving, and secondary and primary control coping strategies was associated with lower levels of anxiety (Gaylord-Harden & Cunningham, 2009; Houtzager et al., 2004) and depression (Wadsworth & Berger, 2006). Wadsworth and Compas (2006) also found that secondary coping strategies mediated the effects of family



conflict and financial stress on anxiety and depression. The cognitive coping and emotion-focused strategy of positive reappraisal of situations was found to be predictive of fewer anxiety symptoms in adolescents (Garnefski et al., 2001).

Negative outcomes have been associated with the repeated use of strategies that do not manage one's emotions constructively or avert taking action against the stressor. The cognitive coping strategies of rumination, self-blame, and catastrophize are emotion-focused strategies that have been associated with anxiety in adolescents (Garnefski et al., 2001, 2002). Behavioral and cognitive avoidance (classified as disengagement or avoidant coping) of a stressor are highly associated with increased levels of anxiety and depression (Ebata & Moos, 1991; Gaylord-Harden & Cunningham, 2009; Roth & Cohen, 1986).

Although a youth might initially feel less stress by removing themselves from the distressing situation when using avoidant or disengagement strategies, avoidant strategies perpetuate anxious beliefs and continued avoidance. Constant avoidance does not enable a youth to productively interact with or manage the stressors in a way that reduces anxiety (Kendall et al., 2005). Instead, he or she learns to avoid the situation in which the stressor was experienced (Patterson & McCubbin, 1987; Simpson, 2011; Sandler et al., 2000). Anxious and depressed youth have been found to consistently endorse using more avoidant strategies than youth without psychological concerns (Barrett & Rapee, et al, 1996; Ebata & Moos, 1991). Compared to other anxious youth who reported using fewer disengagement strategies, anxious and depressed youth who used more disengagement

strategies at baseline maintained higher levels of symptoms eight months later (Wadsworth & Berger, 2006).

Individuals often adopt a pattern of coping by selecting specific strategies over others in a manner that also influences anxiety. Gaylord-Harden and colleagues (2008) identified individuals who selected more avoidant strategies as “self-reliant copers,” or those who used significantly fewer strategies other than avoidant strategies. “Diversified copers” were identified by Gaylord-Harden and colleagues (2008) as those youth who utilized a wider variety of all coping strategies. Researchers have found that individuals who face more life stressors and also those who have higher anxiety levels report using a more diversified range of coping strategies (Gaylord-Harden et al., 2008; Manassis, Mendlowitz, & Menna, 1997). This does not necessarily suggest that a more diversified coping profile is less effective in reducing anxiety; Manassis et al. (1997) instead posit that anxiety levels are likely determined by a complex relationship between anxiety-inducing life events that require a broader repertoire of coping strategies and how effective the selected strategy or style is in facing both controllable and uncontrollable stressors.

Even after highly traumatic life events, coping patterns have similar effects on anxiety and other psychological outcomes. After Hurricane Katrina, the consistent use of more avoidant strategies was associated with higher anxiety and post-traumatic stress disorder and was also negatively related to utilizing approach-oriented cognitive coping (Pina et al., 2008; Rutherford & Endler, 1999). In another study following the 9/11 terrorist attack, those who used more avoidant and disengagement strategies maintained

levels of anxiety and depression eight months after the attack, while those who utilized more primary control strategies had lower levels of anxiety and depression after eight months (Lengua, Long, & Meltzhoff, 2006). Although complex and displaying some variance across individuals and context, it is evident that patterns of coping are related to psychological outcomes in youth.

The effects of specific coping strategies on youth psychological outcomes are context-dependent. Across racial and socioeconomic background, employing primary and active control strategies are related to improved mental health when stressors are controllable (Connor-Smith et al., 2000; Jasper et al., 2005; Landis et al., 2007; Wadsworth & Compas, 2002). For uncontrollable stressors, the use of distraction and avoidance is associated with better psychological outcomes; however, differences have been found across youth in different environments. With a population of African-American youth living in a high-crime inner-city environment, avoidance as a coping strategy was associated with lower levels of anxiety, which was posited to be a factor of facing unavoidable dangers (Edlynn et al., 2008; Gaylord-Harden & Cunningham, 2009). On the other hand, in dangerous environments, using distraction for some youth in low-income communities was not related to better psychological outcomes, as engaging in distracting outdoor activities was limited (Grant et al., 2000; Jasper et al., 2005; Landis et al., 2007).

While there is strong support for the connection between youth coping and youth anxiety, there are some disparities and gaps in the literature. First, many studies do not have evidence of coping strategies from both clinical and non-clinical youth, instead

relying solely on community samples (Copeland & Hess, 1995; Lengua et al., 2006; Wadsworth & Berger, 2006) or only on clinical samples (Simpson, 2011). Garnering a comprehensive distribution of coping strategies in a broad youth sample including clinical youth can provide a more comprehensive depiction of the range of coping strategies and better assess the connection of coping strategies and outcomes. Secondly, many studies failed to find significant effects of coping and psychological outcomes (Ebata & Moos, 1991; Nicolotti et al., 2003), while others found conflicting results. Distraction, for example, has been found to be a protective factor (Weisenberg et al., 1993; Gaylord-Harden, 2008), but a risk factor for anxiety in others (Landis et al., 2007; Tolan et al., 1997). It is possible that failure to adequately define coping concepts consistently (Barrett & Rapee, 1996; Hutchinson et al., 2006) and differences in measurement (both assessment tools and reporters) across methods could explain non-significant findings (Compas et al., 2001). Research utilizing validated measures and consistent terminology with a normally distributed sample will elucidate the connection further and enable comparisons across studies and samples.

Despite gaps in the literature, the use of certain coping strategies has fairly robust associations with youth anxiety. Generally, in controllable situations, the use of active, problem-solving, and secondary and primary control coping strategies is associated with lower levels of anxiety (Gaylord-Harden & Cunningham, 2009; Houtzager et al., 2004). Behavioral and cognitive avoidance of a stressor are highly associated with increased levels of anxiety and depression (Ebata & Moos, 1991; Gaylord-Harden & Cunningham, 2009; Roth & Cohen, 1986). Further research on a broad sample that utilizes well-tested

measures with consistent strategy classification would address some of the concerns in prior research that limit the ability to make comparisons across studies and in generalizing significant findings.

### **Factors associated with youth coping**

As the link between coping and anxiety outcomes is well established, understanding the factors that shape the development of a youth coping strategies is important. A number of individual and environmental factors have been investigated in their influences on youth coping. Developmental differences may account for the number and type of coping strategy youth employ (Compas, 2001; Gunnar, 1995; Simmer-Gembeck & Skinner, 2011). With the onset of more facile metacognitive skills and reasoning, as well as having had more exposures and experiences learning to cope, adolescents tend to employ a wider variety of coping strategies, particularly cognitive ones (Moss et al., 1997; Normandeau & Gobeil, 1998). There is also evidence that the more negative life events one experiences, the greater number of strategies youth employ, which was also found to be correlated to higher levels of anxiety (Manassis et al., 1997). Strategies employed and their effectiveness appears dependent on the controllability of the situation (Forsythe & Compas, 1987; Osowiecki & Compas, 1998, 1990). While some studies have found differences in the use and effectiveness of particular strategies across races, such as distraction, (Gaylord-Harden & Cunningham, 2009; Landis et al., 2007; Tolan et al., 2002), small sample sizes have limited a comprehensive analysis. Youth with a predisposition or genetic vulnerability to hyperarousal or behavioral inhibition may also be more likely to use more avoidant and withdrawal strategies

(Kagan, 1989; Kagan & Snidman, 1991). Youth with elevated anxiety levels also tend to use more variety in the types of coping strategies used, but with increased reliance on more maladaptive, anxiety-evading strategies such as avoidance and to some extent, distraction (Barrett, Rapee, et al, 1996; Ebata & Moos, 1991; Wadsworth & Berger, 2006). Many of these variables have ambiguous results and are outside the scope of this study and will not be included in this model. For a more detailed account of findings on these factors' association with youth coping, refer to Appendix E.

Gender is one individual factor consistently associated with youth coping differences and whose influences will be considered in this study. Women and girls tend to use emotion-focused and passive coping strategies more than males (Milkie & Thoits, 1993; Thoits, 1995). Females also rely more on the cognitive coping strategies of rumination, catastrophizing, and positive refocusing than males (Garnefski et al., 2004). In a study with Australian adolescents, Frydenberg and Lewis (1991) found that girls and boys cope differently with the main events in their lives. Their results indicated that girls tended to seek out social support and utilized the emotion-focused and cognitive strategies of wishful thinking and hoping for the best more so than boys. Patterson and McCubbin (1987) similarly found that girls are more self-reliant in coping and focus on problem-solving more than males, but they also rely more on social support. Meanwhile, Patterson and McCubbin (1987) found boys used more humor than girls. Gender appears to influence the type of coping strategies youth employ, although similarly to anxiety, these differences may be influenced by cultural norms of appropriate ways of coping that vary by gender.

### **Summary of youth coping**

Coping strategies are cognitive and behavioral attempts to manage anxiety and individual experiences (Perlin & Schooler, 1978). The conceptualization and assessment of coping strategies in youth has arisen from previous work on adult stress, anxiety, and coping (Endler & Parker, 1990; Lazarus & Folkman, 1984). Various dimensions of coping have been proposed and assessed in both adult and youth coping models (e.g. Ayers et al., 1996; Band & Weisz, 1988; Ebata & Moos, 1991; Lazarus & Folkman, 1984; Sandler et al., 2001), but overlap across classification systems reveals general types of active and avoidant coping strategies with a variety of subcategories with specific strategies within them. Active coping strategies consist of constructive actions to manage distress in the environment (such as problem solving or seeking support) or to control their cognitive and emotional reactions (such as cognitive restructuring or distraction) (Ayers et al., 1996; Billings & Moos, 1981; Ebata & Moos, 1991; Sandler et al., 2001). Avoidant coping strategies involve disengagement or averting distress, such as physical avoidance and denial (Ebata & Moos, 1991; Roth & Cohen, 1986; Sandler et al., 2001).

A youth's coping style, or the consistent use of particular coping strategies, is tied to psychological outcomes. With controllable stressors, employing active control strategies is related to improved mental health and considered more adaptive (Connor-Smith et al., 2000; Jasper et al., 2005; Landis et al., 2007; Wadsworth & Compas, 2002). Conversely, frequent avoidant coping is linked to higher anxiety and depression in youth (e.g., Barrett et al., 1996; Ebata & Moos, 1991; Wadsworth & Berger, 2006). Avoidant coping is considered less adaptive as repeated avoidance of a stressor prevents a youth

from developing the use of more adaptive, engaging strategies (Chorpita & Barlow, 1998; Kendall et al., 2005; Rapee, 2001). Avoidance also reinforces fear of the related anxiety-inducing stimulus, perpetuating a cycle of vulnerability and avoidance. Teaching youth more adaptive coping strategies is part of many evidenced-based treatment programs and have demonstrated improvements in anxiety levels after treatment (e.g., Kane & Kendall, 1989). Continued research on additional influences on the coping strategies youth employ can provide new points of intervention to improve the adoption of adaptive strategies.

A number of individual and environmental factors such as developmental level, life events, gender, race and culture, and anxiety level may influence the coping strategies youth develop and utilize. However, most of these variables have limited or inconsistent support for difference or are outside the scope of this study. Only gender has consistently shown consistent differences of strategy use by boys and girls and will be included in this analysis.

#### **FAMILY FACTORS AND YOUTH COPING**

The evidence for the influence of family characteristics on youth anxiety suggests family factors also shape the ways youth learn to cope with stressors and anxiety. Although less extensive research has been conducted on the connection between the family milieu and coping strategies, a number of family factors, have evidence of contributing to the coping strategies youth adopt. Many of these are specific parental behaviors in pediatric populations that are briefly discussed but not part of the scope of this study. Additional unexamined family influences that theoretically could provide important information on the development of coping strategies are also suggested.



**Parental styles and behaviors**

Parental support can foster the coping strategies a youth employs. Getting support from a parent can assist a youth in problem solving, reassessing the situation, and choosing active, adaptive coping strategies (Carothers et al., 2006). Social support itself is a coping strategy associated with better adjustment and lower anxiety levels (Wadsworth & Compas, 2006). Armsden and Greenberg (1987) found that seeking out support may depend on the parent-child relationship, as securely attached adolescents were more likely than insecurely attached adolescents to seek support from a parent in times of distress and had less symptomatic reactions to stressful events.

Parents also may directly suggest strategies or coach children to use specific coping strategies. Evidence suggests parental coaching may reinforce both adaptive and less adaptive strategies over time. In pediatric populations, parents who encouraged their children to use distraction during a dental or medical procedure tended to use more distraction strategies (Blount, 1991). In a study conducted by Barrett, Rapee, and colleagues (1997), anxious and non-anxious children were interviewed alone first on how they would cope with a stressful situation. The youth were then asked to discuss the situation with both parents and come up with a final solution. Alone, 29.7% of anxious youth reported they would use an avoidant strategy, which rose to 67.8% after the family discussion (Barrett et al., 1996). In a similar study by Dadds and colleagues (1996), parents of anxious youth ages 7-14 were observed to reciprocate their child's decision to avoid a situation, while parents of non-clinical youth tended to listen to and promote proactive, social actions. Parents of anxious children were less likely to listen to their

children and tended to not point out positive consequences of other strategies (Dadds et al., 1996).

In a pediatric population of youth recently diagnosed with a terminal illness, Hauser and colleagues (1986) observed youth who recently received a diabetes diagnosis and their parents engaging in solving a family problem. During family interactions, parents and youth had higher levels of anxiety who displayed less efficacious coping strategies and more constraining behaviors that were less likely to lead to adaptive coping responses (Hauser et al., 1986). Kliever and colleagues (1996) suggested that the adoption of coping strategies suggested by parents depends on other factors, particularly the parent-child relationship, family functioning, and modeled behaviors. Parents' own coping style has been found to be positively associated with the coping strategies they recommended to their children (Miller et al., 1994),

There is not clear evidence that parental modeling of coping strategies also influences the strategies youth employ. Based on social learning theory (Bandura, 1978), Compas and colleagues (1992) suggested that more active, problem-solving behavioral strategies may be more easily transmitted than emotion-focused, cognitive strategies, as those are not always visible or discussed. In pediatric populations, concordance existed between a mother's use of passive coping with pediatric illness and children's passive ways of coping with pain (Gil et al., 1991). Gil and colleagues (1991) further found that parents' active coping attempts were negatively related to negative, catastrophizing thinking in their child. Kliever and colleagues (1996) found an association between parental use of religious coping (a type of support seeking) and child's support seeking in

either parent, and that boys' active coping use was associated with father's active coping. Conversely, Buckley (2003) did not find that youth more frequently employed the coping strategies their parents used.

### **Family functioning**

Beyond the individual parental influences, the greater family environment also provides a rich context in which a youth experiences stressors and can learn to cope. General family dysfunction can be a stressor in itself, yet aspects of family functioning may also foster or perhaps hinder the adoption of adaptive coping strategies for youth. However, there is a dearth of research on how family functioning may influence youth coping strategies. Although rarely examined together as a single variable, aspects of family functioning such as cohesion, communication, control, communication, and conflict level have empirical evidence or theoretical rationale for affecting the coping strategies youth select.

Family cohesion and communication have some evidence for influencing youth coping. Low family cohesion and high conflict have been associated with more avoidant and explosive (venting) coping strategies in diabetic youth (Hanson et al., 1989). Kliever and colleagues also found a positive relationship between positive family environments (high in cohesion and expressiveness, low in conflict) and active, support-seeking strategies in youth. Children who perceived their mothers as warm and accepting were more likely to use approach, support seeking strategies, while those low in warmth and acceptance were more likely to use avoidant coping (Shell & Roosa, 1991). Youth who

feel they are supported and can talk to their parents about their struggles are predicted to be more likely to use adaptive strategies (Kliewer et al., 1994).

The amount of control parents exert over a child's routines, behaviors, and emotional responses is tied to a youth's learned coping strategies. Limiting a child's autonomy reduces their opportunities to explore novel situations and use trial-and-error responses to cope. It also does not allow a youth to gain a sense of mastery or develop new strategies (Chorpita & Barlow, 1998). Parents who reported having higher levels of control in their families were more likely to have youth employ more passive and avoidant strategies (Rapee, 1997).

A study by Hardy, Power, and Jaedicke (1993) assessed the effects of family control, support, and organizational structure on youth coping strategy selection. In semi-structured interviews with youth across a variety of stressors identified by the mother, Hardy and colleagues (1993) found that children (ages 9-10) with more supportive and relatively lower levels of structure endorsed a wider repertoire of coping strategies. Children with more structure in their families identified they would use fewer aggressive strategies, and youth with higher levels of support used more avoidant strategies, but only in uncontrollable situations, which is considered to be adaptive (Altshuler & Rubel, 1989).

While limited evidence exists for some aspects of family functioning's connection with youth coping, the association between overall family functioning and youth coping needs to be explored. Furthermore, measuring family functioning with relevant domains

that have been unexplored may further clarify how both discrete domains of family functioning and overall family functioning contribute to youth coping strategies.

### **Family accommodation**

Family accommodating behaviors in potentially anxiety-provoking situations potentially influence the coping strategies youth adopt; however, no studies have directly assessed the relationship between family accommodation and youth coping strategies. While it is typical for parents to want to reduce any distress in their child's life, the level of accommodation could affect a youth's opportunity to learn and adopt adaptive strategies. When a parent is consistently trying to shield or remove a child from a situation or problem-solve for a child or adolescent, the child's anxiety develops or is confirmed, and the youth also learns avoidant behaviors (Rapee, 2002). The child's sense of self-efficacy and ability to control the stressors and self-manage their emotions also does not progress, dependency and perpetuating anxiety reinforces the parents' accommodating behaviors (Rubin et al., 2003; Whaley, Pinto, & Sigman, 1999; Wood et al., 2003). Examining whether family accommodating behaviors influence youth coping would add to the extant literature. Specifically, assessing whether family accommodation fosters the development of more avoidant coping and hinders active coping would provide additional evidence for targeting family accommodation behaviors during treatment in order to bolster the use of adaptive strategies.

**Parental anxiety.** Parental psychopathology shapes youth coping indirectly through a number of ways. Buckley and Woodruff-Borden (2006) found that anxious parents modeled less effective coping strategies such as avoidance and rumination. In an

observational study, Buckley (2003) found that anxious mothers engaged in significantly more maladaptive coping strategies (venting and rumination of negative emotion) in front of their children than non-anxious mothers. However, Buckley (2003) did not detect a significant difference in coping strategies employed by children of anxious mothers. However, Buckley (2003) also failed to detect a potential difference in the use of adaptive versus maladaptive strategies in the two groups because only a portion of the child sample completed the self-reported measure, and the data for those missing was limited to observation of behaviors in a laboratory setting and could not observe adaptive, cognitive coping. Additionally, this study did not examine additional family factors that could also influence or buffer the effect of parent psychopathology on youth coping strategies, such as other family members' support, communication, and organization.

Anxious parents also often reinforce their child's avoidant behaviors and discourage approach coping in novel or ambiguous situations, which tends to lead to subsequent avoidant behaviors in their children after discussions (Barrett et al., 1996; Rapee, 2001). Compared to non-anxious mothers, anxious mothers also expressed doubt that their child could adequately cope in ambiguous situations (Barrett, Fox, & Farrell, 2005). Anxious parents are less likely to provide positive coaching and encouragement to their children in ambiguous situations (Woodruff-Borden et al., 2002).

While there is evidence for the role of the family environment on coping skills in youth, particularly in terms of parental anxiety and some aspects of family functioning, there are a number of limitations. Much of the research has focused on coping in pediatric populations dealing with unique or specific stressors (Compas et al., 1992; Hauser et al.,

1997; Kliwer et al., 1994; Kliwer et al., 1996). Other studies have not assessed both clinical and non-clinical children (Hardy et al., Hardy et al., 1994; Kendal, 1994), or have not included parental anxiety as an influence (Barrett et al., 1996; Rapee, 2002). Family functioning's association with youth coping has little treatment in the literature and has focused primarily on cohesion, control, and conflict. Additionally, although familial accommodating behaviors may reinforce anxiety and avoidance, no studies have examined the effects of accommodation on youth coping.

#### **INFLUENCES OF FAMILY FACTORS AND YOUTH COPING ON YOUTH ANXIETY**

Despite the multiple relationships between family factors, coping strategies, and anxiety outcomes, it is remarkable that almost no research exists that has assessed the connections between all three variables together. Much of the literature that does exist that can inform these relationships has examined family characteristics, coping strategies, and a different outcome variable, such as depression (Gonzales et al., 2001; Nicolotti et al., 2003) and externalizing problems (Gaylord-Harden, 2008).

Other studies examining family factors and coping strategies have used broad psychological outcome variables, such as psychological adjustment or internalizing symptoms. A study by Gaylord, Kitzmann, and Lockwood (2003) found that the relationship between number of stressors on a family and internalizing symptoms was not moderated by coping strategies in a sample of third through fifth graders. However, their study measured only the internalizing symptoms that contributed to peer rejection, their main outcome variable of interest, and not youth anxiety. Additionally, Gaylord and

colleagues (2003) assessed coping strategies with a limited approach, asking youth to rate the likelihood of only three coping strategies.

One study has assessed youth coping strategies and anxiety levels in light of specific family stressors. Using structural equation modeling, Wadsworth and Compas (2002) tested whether the coping strategies used by adolescents in rural New England mediated or moderated the effects of family economic hardship or family conflict on their composite anxiety/depression levels. Coping strategies mediated the effects of family conflict and psychological adjustment, but coping did not moderate this relationship. Primary and secondary coping strategies were negatively related to anxiety/depression levels, with lower levels of anxiety/depression relating to higher endorsement of these strategies. The models did not differ for age, gender, and single versus two-parent homes. While Wadsworth and Compas (2002) did not examine the influence of family dynamics, their study provide support for the potential mediating and moderating role of coping strategies.

Other studies lend support for the mediating effects of coping strategies between stressors and psychological outcomes (Mitchell, Cronkite, & Moos, 1984; Pearlin et al., 1981; Quittner, Glueckauf, & Jackson, 1990; Sandler et al., 1994). Ascertaining the mediating or moderating role of coping strategies, as noted by Wadsworth and Compas (2002), may be contingent on the type of predictor variables (in these cases, the type of stressor), the types of coping assessed, and the outcome variable.

To date, only one study has assessed the potential mediating and/or moderating roles between specific family factors, coping strategies, and anxiety outcomes in youth.



Using a risk and resilience framework, Simpson (2011) assessed two models with a latent variable of family risk factors (comprised of parent psychopathology, low family cohesion, and low perceived parental support), coping strategies as a mediator and moderator, and youth anxiety levels, controlling for socioeconomic status. In a racially diverse, clinical sample, Simpson (2011) found limited support for a moderating effect of a few specific coping strategies, particularly that higher levels of parental support was associated with higher levels of avoidance and higher levels of anxiety. Interestingly, higher levels of parental support were associated with higher levels of avoidance, but with lower levels of anxiety, and higher levels of social support were linked to higher levels of both cognitive restructuring and anxiety levels. These findings are surprising, considering research has demonstrated the negative association between avoidance and anxiety, and a positive relationship between cognitive restructuring and anxiety. Simpson (2001) did not detect a significant relationship between any predictor variables and anxiety levels; therefore, no mediating effect of coping strategies that met significance was detected.

A number of concerns and limitations may explain the lack of significant findings in Simpson's (2011) study. First, Simpson's use of only clinically anxious youth may have restricted the data range, as evidenced by the higher, more narrow range of anxiety scores (compared to community sample studies) measured by the MASC (Baldwin & Dadds, 2007; March, 1997). Additionally, many of the latent variables did not fit in the measurement model. The indicators of the proposed family risk latent variable did not adequately fit during initial factor analysis. Therefore, Simpson (2011) was limited in his

model by assessing the variables of parent psychopathology, parent support, and family cohesion separately. Simpson (2011) also had to run separate analyses for parent psychopathology for depression, anxiety, and stress, as these three subscales did not adequately fit. This diluted analysis restricts a more contextual, dynamic study of multiple family variables.

Simpson (2011) also limited the number of family factors that could contribute to the family risk variable, despite evidence that other family variables can influence both coping strategies and anxiety outcomes, such as family functioning (e.g., Hudson & Rapee, 2002; Stark et al., 1990; Wadsworth & Berger, 1996; Wadsworth & Compas, 2002). Although Simpson used a more general measure of family functioning, the Family Relationship Scale (FRS; Tolan et al., 1997), which captures perceived family functioning along the three dimensions of cohesion, organization, and beliefs, he only chose to measure cohesion from this measure. Due to this piecemeal analysis, with none of the subscales of the initially proposed factors demonstrating significant associations, the ability to detect the potential direct effects of family factors and mediating effects were reduced.

While studies have used other outcome variables with family factors and coping, there is a paucity of research that has examined the influences of family factors, coping strategies, and youth anxiety. Only one study has investigated the influences of these factors together (Simpson, 2011), but it was limited by methodological, statistical, and sampling concerns. Evaluating a model with family factors that consider both common causes and additional aspects family functioning on both coping strategies and youth

anxiety can elucidate the multiple family factors that are associated with transmission of anxiety and molding of coping strategies. Particularly, exploring parental anxiety, family functioning, and family accommodating behaviors, youth coping, and youth anxiety could reveal such relationships.

### **Assessment of parental anxiety, family functioning, and family accommodation**

Parental anxiety has been measured in prior studies using a variety of instruments. Although multiple sources of data are recommended (Hodges, 1994; Stallings & March, 1995), due to their time efficiency and standardization, self-report questionnaires are often used to assess parent psychopathology in the literature. The State Trait Anxiety Inventory for Adults (STAI; Spielberger, Gorsuch, & Lushene, 1970) is one such measure that has strong psychometric properties. The STAI is particularly useful in assessing both state and trait anxiety. The STAI has also been normed on clinical and non-clinical adults and due to its frequent use in research, allows for comparison across studies (Marteau & Becker, 1992).

The main purpose in assessing family functioning is to quantify theoretical constructs related to the research questions (Carlson, 2003). Methods of assessing family functioning include self-report measures, observations, and interviews (Carlson, 2003). Research often utilizes self-report questionnaires due to their brevity and standardized administration.

As research suggests that certain aspects of family functioning contribute to youth anxiety, particularly control, communication, affective expression, involvement, roles,

and task accomplishment, The FAM-III (Steiner, Skinner, & Santa-Barbara, 1984) is a measurement device that validly and reliably measures these constructs. Based on a model that resembles the McMaster Model, the Process Model of Family Functioning, the FAM-III is similar to the Family Assessment Device (FAD; Epstein et al., 1983) often used in studies on families and anxiety (e.g., Campbell & Woodruff-Borden, 2009, von Ort, 2010). The FAM-III (Steiner et al., 1984) provides an overview of family functioning from each individual's perspective, but also offers insight into particular perceptions of functioning and the relationship between dyads within the family. The addition of the dyadic scale enables an assessment of exchanges, functioning, and connectedness between multiple members. Spillane (2001) argued that it excels in pulling for family characteristics and processes.

The FAM-III (Steiner et al., 1984) assesses family functioning from a wide variety of domains, many of which are implicated in the evidenced or potential connections with youth coping and youth anxiety. While cohesion is not measured directly in the FAM-III, it will be indirectly measured based on it comprising closeness based on communication and affective expression (Cuffe et al., 2005; Simpson, 2011; Tolan et al., 1997). Family cohesion is also frequently not directly measured in prior family functioning studies that use the FAD (FAD; Epstein et al., 1983). The FAM-III also measures control and involvement, both of which in extreme highs and lows in parental functioning have been positively related to anxiety levels and potentially hinder the development of appropriate youth coping.

Only one measure presently exists that assesses family accommodation behaviors for child anxiety. The Family Accommodation Scale-Anxiety (FASA; Lebowitz, 2012), a parent and child self-report measure, was adapted from the Family Accommodation Scale (FAS; Sotrch, Merlo, & Geffken, 2005; Calvocoressi et al., 1999) for use specifically with anxiety disorders. Lebowitz (2012) and colleagues recently demonstrated high validity and internal consistency in the only study that has assessed family accommodation in anxiety disorders beyond OCD. The FASA also has strong associations with other measures of anxiety symptom severity (Lebowitz, 2012).

### **Summary: Family Factors, Youth Anxiety and Youth Coping**

As much of a youth's experience and exposure to the world occurs within the family context, consideration of the influence of multiple family factors on of youth coping strategies and youth anxiety levels is important from a developmental psychopathology perspective.

Families of anxious youth tend to have problematic aspects of their family functioning. Families with anxious youth tend to be highly involved, controlling, rejecting, and less connected emotionally (Messer & Beidel, 1994; Rapee, 1997). Increased family control has been associated with lower self-competence, higher anxiety, and temperamental rigidity (Messer & Beidel, 1994). Stark and colleagues (1990) identified families of anxious children as more enmeshed and less supportive than families of non-anxious children. Communication and social support are also less effective or available in families of anxious youth (Demaray & Malecki, 2003; Holahan, Valentiner, & Moos, 1995; Thoits, 1995). Parental anxiety has a demonstrated

association with higher anxiety levels in youth beyond genetic transmission (Turner et al., 1987; Victor et al., 2007) through indirect negative influences on family functioning (Essex, Klein, Cho & Kraemer, 2003; Turner et al., 1987; Victor et al., 2007). Prior research is limited by its use of retroactive reporting by adult offspring (Laria et al., 2002), and a lack of studies that include the diagnostic status of both parent and child (Whaley et al., 1999; Woodruff-Borden et al., 2002).

Family factors have also been linked to youth coping strategies, although is has primarily focused on how childrearing practices and parental behaviors influence youth coping (Kortlander, Kendall, & Panichelli-Mindel, 1997). Through modeling, coaching, and reinforcement, parents can influence the specific coping strategies youth adopt (Blount, 1991; Gil et al., 1991; Kliwer, 1991). Discussions around coping strategies have also been shown to alter how a youth will respond to an anxiety-provoking situation (Barrett et al., 1996; Dadds et al., 1996). Parent psychopathology has been significantly linked to increased encouragement of avoidance and a belief their child will choice avoidance (Barrett et al., 1996; Woodruff-Borden et al., 1998). Positive associations between adaptive coping strategy use and maternal warmth, family cohesion, and support have also been found (Hardy et al., 1993). However, the literature has been frequently limited to pediatric populations (Hauser et al., 1986), or has not included the influence of parental psychopathology in the analysis (Buckley, 2003).

Family accommodation of anxiety, or changes usually made by a parent in family routines or behaviors in order to avoid a potentially anxiety-provoking situation, is one family behavior that is nearly absent in the etiological assessment of youth anxiety. As

accommodation appears to reinforce anxiety by preventing a youth from experiencing the situation and learning to cope, it is likely that family accommodation affects both youth coping and youth anxiety. Including accommodation along with more other family variables in the analysis would provide a more comprehensive picture of how multiple family influences can transmit both coping strategies and related anxiety levels.

Very few studies have assessed family factors and coping strategies on psychological outcomes, and those that have often use a different outcome variable than anxiety or use a composite with depression (e.g., Gaylord, 1992). Only one study has looked at the role of coping strategies in a model between family factors and youth anxiety (Simpson, 2011). However, this study was limited by a lack of fit in its latent variables, and the range of data was restricted to high clinical levels of anxiety. Despite concern with the Simpson (2011) models, this study indicates that additional analysis including other family factors with clear evidence and methods of measurement is warranted.

#### **STATEMENT OF THE PROBLEM AND PURPOSE**

Youth anxiety disorders are highly prevalent and chronic (Costello & Angold, 1995; Kessler et al., 2005) and often cause significant impairment in social and academic functioning (Ezpeleta et al., 2001). As the majority of anxiety disorders develop in childhood and adolescence (Newman et al., 1996), determining factors that influence the onset and perpetuation of anxiety disorders can aid in the development of effective intervention programs to reduce the associated risks.

While genetic factors are estimated to account for 33% of the variance in the development of youth anxiety (Eley, 2001), other environmental and individual influences have a role in the development and persistence of youth anxiety disorders. Beyond transmission of a genetic predisposition for anxiety, parental anxiety can also influence elevated youth anxiety behaviors that affect family functioning. Parental anxiety has been associated with aspects of family functioning that have also been predictive of clinical levels of youth anxiety, such as overcontrol, high cohesion, low adaptability, high degrees of conflict, and overall lower levels of dysfunction (Ben-Noun, 1998; Last & Strauss, 1990; Leib et al., 2000; Stark et al., 1993; Stark et al., 1990). However, research examining the connection between family functioning and youth anxiety have often focused on a narrow range of constructs or aspects less related to the etiology of youth anxiety disorders (Ginsburg et al., 2004). To address this gap in the literature, this study will incorporate relevant domains of family functioning that have been investigated and also those that have been under-examined in their association with both parental and youth anxiety. These include affective expression, involvement, communication, and control.

While parental anxiety and aspects of family functioning have been implicated in youth anxiety development, not all relevant family factors have been examined. Family accommodation of youth anxiety, or behaviors that reduce a youth's exposure to anxiety-provoking situations, is nearly absent in the literature and has only recently become more of a research area of interest (Jones, 2013; Jones et al., 2015; Lebowitz, 2012). This is concerning, as enabling youth to avoid distress prevents them from developing



appropriate ways to cope with stress, leading to higher anxiety (Manassis & Mendlowitz, 1997). However, research has not empirically studied the extent to which family accommodation influences the coping strategies youth employ. Furthermore, no studies have examined the influences of parental psychopathology and family functioning on accommodation, although prior research indicating high levels of control and modeling of avoidance in anxious parents suggests potential associations between parental anxiety, family functioning, and family accommodation. This study will address the identified gaps in the literature by examining the combination of parental anxiety, family functioning including relevant domains, and family accommodation with both coping strategies and youth anxiety.

The coping strategies youth employ when distressed are also predictive of anxiety symptoms. The use of maladaptive coping strategies, such as avoidance, is associated with higher anxiety, while employing more active strategies, such as direct problem solving, is related to lower levels of anxiety and better adjustment (e.g., Compas et al., 2001; Thoits, 1995). As the family milieu provides a rich learning environment in which youth experience distress and develop ways to cope, it is important to elucidate the influence of parental psychopathology and family functioning on the coping strategies youth utilize and their subsequent anxiety levels. Despite empirical and theoretical support of the connection between family factors, coping, and anxiety, very few studies have examined the potential mediating role of coping strategies between family variables and anxiety levels. This study will add to the extant literature by initiating a preliminary

examination whether the coping strategies youth employ mediates the relationship between parental psychopathology, family functioning, and youth anxiety.

The main purpose of this study is to assess the extent to which family factors influence youth anxiety. Using structural equation modeling, this study will examine the degree to which parent anxiety, family functioning, and family accommodation affect youth anxiety levels while controlling for gender. A preliminary analysis of the influence of family factors on youth coping strategies will also be explored. Initiating an investigation of the potential mediating effect of coping strategies between family factors and youth anxiety levels is also an objective. To meet the objectives of the current study, the sample will be drawn from an ongoing anxiety intervention study, and outpatient clinic, and local schools. It will include 7- to 17- year old youth diagnosed with and without an anxiety disorder. Ratings of parental anxiety, family functioning (communication, affective expression, involvement, and control), family accommodation of anxiety behaviors, youth coping strategies (active and avoidant), and severity of anxiety symptoms will be obtained from the youth, their parents, or both.

## **Chapter III: Method**

### **PARTICIPANTS**

#### **Overview**

Data was collected from two different sources, with 130 youth participants and 130 primary caregivers, totaling 260 participants. For the purposes of this study, primary caregivers included biological, step-, adoptive parents, and legal guardians. Only one primary caregiver participated per youth. Primary caregivers indicated their caregiver status on the demographic form in Appendix H, or this information was obtained from the child history portion of an intake form. As the genetic influences of caregivers and families account for only a portion of the variance on youth anxiety and coping, all of the above primary caregivers have been analyzed as one group, deemed “caregiver.”

#### **Youth participants**

Males and females between the ages of 7-17 years old comprised the youth participants. In the first source, 50 participants were recruited from an ongoing anxiety treatment study at the Texas Child Study Center (TCSC), a university-related outpatient clinic. Youth involved in the study must meet criteria for a primary diagnosis of Generalized Anxiety Disorder, Separation Anxiety Disorder, or Social Phobia, based on an intake interview completed with the ADIS-CSR. The second source was 80 participants recruited through community sources, such as at public events, parent groups, and community centers. It is noted that within the community sample there could be clinically anxious youth. Participants from both sources were combined for this analysis into one sample, which enabled a wider distribution of responses to study

questions. Having a larger range of responses prevents the likelihood of reduced correlations that can occur with truncated samples of restricted range (Howell, 2010).

### **Exclusion criteria**

Youth from both sources were excluded from participating if they could not speak, read, or write in English and if they had received a diagnosis of an Axis II disorder. Exclusionary criteria from the Child/Adolescent Anxiety Multimodal Study (CAMS; Compton et al., 2010) were used. Youth presenting with any of the following features were excluded from this study: psychotic features, Pervasive Developmental Disorders, Intellectual Disability, eating disorders, substance abuse disorders, suicidal and/or homicidal ideation, major depression, bipolar disorder, confounding medical condition, pregnancy, uncontrolled Attention Deficit/Hyperactive Disorder, or a learning disability that would prevent them from understanding the measures were also excluded. Primary caregivers were required also to be able to speak, read, and write in English. See Table 1 for participants' demographic information.

Table 1: Overview of Participants' Demographic Information

<u>Youth Gender</u>	<u>N</u>	<u>%</u>
Female	63	48
Male	67	52
<u>Youth Age</u>		
7	14	10.8
8	18	13.8
9	18	13.8
10	23	17.7
11	19	14.6
12	8	6.2

13	9	6.9
14	6	4.6
15	5	3.9
16	8	6.2
17	2	1.5
<u>Youth Ethnicity</u>		
White Non-Hispanic	91	70.5
White Hispanic	26	20.2
African American	3	2.3
Asian American	4	3.1
Multi-Racial	5	3.9
<u>Caregiver Type</u>		
Biological Parent	74	56.9
Adoptive Parent	55	42.3
Biological Legal Guardian	0	0
Non-Biological Legal Guardian	1	8
Other	0	0
<u>Caregiver Gender</u>		
Female	104	80
Male	26	20
<u>Caregiver Educational Status</u>		
Less than High School	0	0
High School Diploma	17	13.6
Some College	24	19.2
College Degree	71	60
Graduate Degree	16	12.8
<u>Caregiver Relationship Status</u>		
Married/in a relationship	94	75.2
Single	18	14.4
Separated/Divorced	34	10.4

Table 1, cont.: Overview of Participants' Demographic Information

## **INSTRUMENTATION**

Refer to Table 1 for an overview of the measures used in this study and to Appendices F - M for partial questionnaires and/or measures.

### **Demographic questionnaires**

For participants from the anxiety study, the TCSC standard self-report intake form was utilized. Family information (caregivers' marital status, individuals living in the home, family history, etc.) and youth information (school, previous evaluations and treatments, developmental/health history, medical drug treatment history) were collected from primary caregiver(s). For participants who were recruited from the community, a brief questionnaire was administered to parents in order to collect basic demographic data such as the child's age, gender, race/ethnicity, and his/her diagnosis status.

### **Measure of family functioning**

#### ***Family Assessment Measure-III (FAM-III; Skinner, Steinhauer, & Santa-Barbara, 1995)***

The FAM-III General Scale Skinner is a fifty-question measure that assesses family functioning/dysfunction from a systems perspective across seven subscales: task accomplishment, role performance, communication, affective expression, involvement, control, and values and norms. For the purposes of this study, communication, affective expression, involvement, and control were used. These were aspects of family functioning hypothesized to be relevant to youth coping and youth anxiety levels. This measure also includes two additional scales, Social Desirability and Defensiveness, which assess whether a respondent's answer pattern appear to promote an overly positive

depiction or indicate a defensive attitude. Response choices are “strongly agree”, “agree”, “disagree”, and “strongly disagree”. Scores for the subscales range from 0-15, with higher scores indicating more elevated levels dysfunction in that particular subscale. It is appropriate for use with ages ten and above.

Successive pilot tests of items helped establish and demonstrate adequate levels of internal consistency reliability estimates (Skinner et al., 1995). The FAM-III has also demonstrated strong discriminant (Forman, 1998; Skinner et al., 1983) and construct validities (Bloom, 1985; Bloomquist & Harris, 1984). Jacob (1995) found significantly moderate to high correlations on other subscales to similar measures of family functioning, such as the Family Assessment Device (FAD; Epstein et al., 1983). In particular, Jacob (1995) found significant moderate to high correlations on similar subscales between the FAM-III and the FAD, which ranged from  $r = .41$  to  $r = .73$ . Reported coefficient alpha reliabilities for overall General Form were estimated to range from .86 to .95 for adult and child samples (Skinner et al., 2002) and median coefficients for test-retest reliability for subscales ranged from .57 to .66 with a test-retest average delay of 12 days in a community sample of primarily white, middle-class families (Jacob, 1995). The FAM-III has also been used in research with samples that have a family member with an anxiety disorder (Buchheim et al., 1990, Woodside et al., 1996). Caregivers completed the General Scale measure.

## **Measures of family accommodation**

### ***Family Accommodation Scale - Anxiety (FASA-CR; FASA-PR; Lebowitz, 2012)***

The FASA-PR is a 13-item (5-pt scale) parent-report questionnaire that measures the degree to which parents accommodate their child's anxiety. The FASA-CR is a 16-item (5-point) child-report questionnaire that assessed the child's perception of their parent's accommodation of their anxiety. Specifically, the FASA-PR and FASA-CR assess parental participation in a youth's anxiety symptoms, modification of their behaviors due to youth anxiety, the level of distress these accommodating behaviors cause to both parents and youth, and the consequences of not accommodating for both youth and parents. The FASA-PR and FASA-CR have parents or youth indicate the frequency the caregivers engage in accommodation, with the choices of never = 0, 1-3 times a month = 1, 1-2 time a week = 2, 3-6 times a week = 3, to daily = 4. Higher scores indicate a higher frequency of family accommodation. Good parent-child agreement has been found between the child and parent-completed versions (Lebowitz et al., 2015). FASA-CR yields the same scores as FASA and is scored the same way: an overall Accommodation score (9 items; range 0–36), and subscale scores for Participation (5 items, range 0–20), Modification (4 items; range 0–16), Distress (1 item; range 0–4), and Consequences (3 items; range 0–12). The FASA-CR achieved internal consistency greater than  $\alpha = 0.8$  for the nine accommodation items.

The FASA-PR and FASA-CR were adapted from the Family Accommodation Scale (FAS; Storch, Merlo, & Geffken, 2007; Calvocoressi et al., 1999) specifically for use with anxiety disorders. The measure has demonstrated high internal consistency (.90)



and strong associations with other measures of the severity of anxiety symptoms, such as the SCARED, and divergent validity has been confirmed with non-significant correlation with measures of depression (Lebowitz et al., 2013). Good parent-child agreement has been found between the child and parent-completed versions (Lebowitz et al., 2015).

Only the first nine questions from each measure will be utilized, which assess the frequency of accommodation through symptom participation and modification of functioning. Prior research has utilized the first nine accommodation items to measure frequency of accommodation and demonstrated good internal consistency ( $\alpha = 0.88$ ) for this subscale and good convergent and divergent validities (Lebowitz, Omer, Hermes, & Scahill, 2013; Lebowitz, Scharfstein, & Jones, 2015). Caregivers and youth completed this measure.

### **Measures of anxiety**

#### ***Multidimensional Anxiety Scale for Children-Child Report (MASC-CR; March, 1997)***

The full measure (MASC-CR) is a 39-item self-report measure that assesses a range of youth anxiety symptoms for children and adolescents between the ages of 8 and 19. The MASC-CR yields a total of 13 scores including the Total Anxiety Scale Score, which is divided into four subscales: Physical Symptoms (consisting of Tense and Somatic subscales), Harm Avoidance (consisting of the Perfectionism and Anxious Coping subscales), Social Anxiety (consisting of the Humiliation Fears and Performance Fears subscales), and Separation/Panic. It also provides an Anxiety Disorders Index and a validity scale. Items are rated on a four-point scale ranging from 0 (Never True About Me) to 3 (Often True About Me), with higher scores indicating elevated levels of anxiety.

Youth completed the MASC about their anxiety symptoms and the MASC total averaged score was used in analyses.

The MASC has well-established psychometric properties (March, 1997; March et al., 1997). Multiple studies have confirmed the four factors and the overall anxiety score of the MASC (Baldwin & Dadds, 2007; March et al., 1997; Parker & March, 1997). The MASC correctly classified 95% of a sample of anxious and non-anxious youth (March, Sullivan, & Parker, 1999). It has demonstrated excellent internal reliability, with alpha coefficients for the total score of .88 for a group of ethnically diverse girls (Hinshaw, 2002), and .87 and .86 for the physical symptoms and social phobia subscales in an ethnically diverse group of boys and girls (Deacon et al., 2002). Test-retest reliabilities were .65 at three weeks and .87 at three months (March et al., 1999). Construct validity was demonstrated with moderate to high correlations found between the MASC and the Revised Manifest Anxiety Scale (RCMAS) in both clinical and community samples (March, 1997). The total score has good internal consistency across gender (.89; Baldwin & Dadds, 2007) and has been found to discriminate between clinical subgroups as a reliable indicator of pediatric anxiety symptoms (Dierker et al., March et al., 1997).

***Screen for Child Anxiety Related Emotional Disorders – Child Version (SCARED-C; Birmaher, Khetarpal, Cully, Brent and McKenzie, 1997)***

The SCARED-C is a 41-item child self-report measure that screens for GAD, SAD, Panic Disorder, and SoP. Respondents report severity of symptoms for the past three months on a 2-point scale (0 = never true, 1 = sometimes true, 2 = often true), with higher scores indicating elevated anxiety symptom levels. Child-reported data from the

SCARED provides information about clinical and subclinical symptoms of anxiety and will be used with all youth participants. Total scores greater than 25 may indicate the presence of an anxiety disorder.

For the total score and each of the five factors both the child and parent SCARED demonstrated good internal consistency ( $\alpha = .74$  to  $.93$ ), test-retest reliability (intra-class correlation coefficients =  $.70$  to  $.90$ ), discriminative validity (both between anxiety and other disorders and within anxiety disorders), and low to moderate parent-child agreement ( $r = .20$  to  $.47$ ,  $p < .001$ , all correlations) (Birmaher et al., 1997). The SCARED-C and MASC-C also were found to have correlations of  $.72$  between their overall scores in samples of pre-adolescent boys and girls (Muris et al., 1998). Youth completed the SCARED about their anxiety symptoms and the total score was used.

***State Trait Anxiety Inventory for Adults (STAI; Spielberger, Gorsuch, & Lushene, 1970)***

The STAI is a measure of trait anxiety in adults, clearly separating the long-standing quality of trait anxiety from a temporary state of anxiety. State anxiety is defined as nervousness or fear and arousal of the autonomic nervous system in response by different situations perceived as dangerous. State anxiety measures how a person feels at the time of perceived threat and is considered transitory. Trait anxiety is defined as feelings of worry and stress that an individual experiences on a daily basis. Trait anxiety assesses how people feel in typical situations most people experience and is considered more stable. The STAI consists of 40 questions and has been normed on working adults. Prompts ask individuals how they feel presently and also generally in response to both

occurrences in the recent past and to hypothetical situations. Response options range from 1 (Not At ALL) to 4 (Very Much So). Scores range from 20 to 80, with higher levels indicating greater anxiety. This measure has been widely used in the research literature and has good reliability (alpha coefficients from .83 to .92 for state scale and .86 to .92 for the trait scale) and validity (coefficients range from .52 to .80; Spielberger et al., 1970). Test-retest reliability is also high for the trait scale, with a range from .97 to .84. The test-retest reliability score for state anxiety over a sixth-month period is understandably low, (.33) as it does not measure a stable characteristic (Spielberger et al., 1970). Validity scores for trait anxiety were estimated to be .80 from correlations with the Manifest Anxiety Scale (Reynolds, Richmond, & Lowe, 2003). Caregivers completed this measure. The mean State and Trait scores from this measure were used in subsequent analyses.

### **Measure of youth coping**

#### ***Children's Coping Strategies Checklist-Revision 1 (CCSC-R1; Ayers, Sandler, West, & Roosa, 2004)***

The CCSC-R1 measures dispositional style and was developed to assess general coping strategies of children and youth in third grade and above (Ayers et al., 1999). The CCSC-R1 consists of 54 prompts to elicit the degree to which youth used different coping strategies in the past month. The CCSC-R1 prompts ask the respondent to report how often they usually have engaged in particular coping efforts on a 4-point scale (1 = Never, 2 = Sometimes, 3 = Often, 4 = Most of the Time). The CCSC-R1 has four coping factors with additional subscales, delineated in parentheses: Active Coping Strategies (Cognitive

Decision Making, Direct Problem Solving, Seeking Understanding), Distraction Strategies (Distracting Actions, Physical Release of Emotions), Avoidance Strategies (Cognitive Avoidance, Avoidant Actions), and Support Seeking Strategies (Problem-focused Support, Emotion-focused Support). The CCSC-R1 also has moderate to good validity and reliability. The Cronbach's alpha scores for active, avoidant, and support seeking strategies were .88, .65, and .86, respectfully (PPR, 2000). As the distraction strategies factor was not used in the initial sample studied in the CCSC-R1, the psychometric properties of an earlier version, the CCSC (Ayers et al., 1996) must be used. Ayers and colleagues (1996) reported the Distraction subscales to range in their Cronbach's alpha scores from .59-.65 for distracting actions and .53-.65 for physical release of emotions.

Using confirmatory factor analyses of the eight sub-dimensions of active and avoidant coping with a sample of 9-12 year old children of divorced parents, Sandler and colleagues (2000) found that a two-factor model comprised of active and avoidant strategies were an adequate fit to the data. The active factor included 24 items that tap at engagement efforts that tap behavioral actions to rectify the problem and cognitive attempts to that reduce the threat or feelings of vulnerability in a situation. The sub-items were direct problem solving, cognitive decision- making, positivity, optimism, control, and seeking understanding. The avoidant factor consisted of the three sub-dimensions of repression, avoidant actions, and wishful thinking. Sandler and colleagues (2000) found good internal consistency reliability, with alpha levels .82 for active coping and .76 for avoidant coping. Furthermore, the authors found that active coping strategies were

associated with lower levels of psychological symptoms in children of divorced parents, and that avoidant strategy subscales correlated with increased psychological symptoms (Sandler et al., 2000). For the exploratory portion of this study, youth's mean scores on the active and avoidant subcategories delineated above were utilized.

<u>Model Variables</u>	<u>Instruments</u>	<u>Constructs Measured</u>	<u>Scoring</u>	<u>Respondent</u>
Youth Gender	TCSC Intake Forms or Demographic Form	Youth Gender	Female (1) Male (2) Other (3)	Caregiver
Family Dysfunction (latent)	FAM-III; (Skinner et al., 1995)	Communication, Involvement, Affective Expression, Control	Higher scores indicate higher degrees of family dysfunction	Caregiver
Family accommodation of anxiety (latent)	1. FASA-CR (Lebowitz, 2012) 2. FASA-PR (Lebowitz, 2012)	Child and Parent Reported Accommodation Levels	Higher scores indicate higher degrees of family accommodation	Child, Caregiver
Youth Anxiety Level (latent)	1. MASC-CR (March, 1997) 2. SCARED-C (Birmaher et al., 1997)	Overall Scores of Youth Anxiety	Higher scores indicate higher levels of youth anxiety	Child
Caregiver Anxiety (latent)	STAI (Spielberger et al., 1970)	Adult State and Trait Anxiety	Higher scores indicate higher degrees of adult state and/or trait anxiety	Caregiver
Youth Active Coping Strategies (latent)	CCSC-R1 (Ayers et al., 2004)	Direct Problem Solving, Cognitive Decision-Making, Positivity, Optimism, Control, and Seeking Understanding	Higher scores indicate frequent use of active coping strategies	Child
Youth Avoidant Coping Strategies (latent)	CCSC-R1 (Ayers et al., 2004)	Repression, Avoidant Actions, and Wishful Thinking	Higher scores indicate frequent use of avoidant coping strategies	Child

Table 2: Overview of Variables and Instrumentation

## **PROCEDURE**

### **Ethical considerations**

The current study was conducted in compliance with the ethical principles and standards of research set forth by the American Psychological Association and The University of Texas at Austin. Prior to the beginning of the study, the researcher obtained approval by the Institutional Review Board at The University of Texas at Austin and also received updated approval with amendments included. See Appendices F and G for the approved study cover letter and consent forms.

### **Recruitment of participants**

#### ***Anxiety study project participants***

Participants who were in the anxiety study at TCSC had already provided assent to be involved in additional research stemming from the study. Participants were recruited for the study through referrals made by therapists at TCSC, by outside mental health practitioners, and through flyers posted at local schools, hospitals, and at the university. Parents of youth between the ages of seven and 17 were initially screened over the phone with a trained graduate student to see whether the youth appeared to have elevated anxiety and whether they meet any of the exclusionary criteria. 67 of youth were screened over the phone, with 58 qualifying with elevated anxiety. When youth met exclusionary criteria, did not appear to have elevated anxiety, or were not willing to participate in the study, the parents were thanked and upon request were given a referral to the outpatient clinic. If youth met inclusion criteria and parents consented to further screening, the parents and youth came into TCSC and were interviewed by trained graduate students with the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Version (ADIS for DSM-IV: C or P; Silverman & Albano, 2004). 56 youth came to TCSC for the second step of the process and were interviewed. 28 youth met criteria for a primary diagnosis of GAD,



12 participants met for a primary diagnosis of SoP (12), and 10 youth had a primary diagnosis of SAD. Youth that met criteria for one of these diagnosis were invited to participate in the study and they and their caregiver completed baseline measures included in this study.

***Community sample.*** The second source was comprised of 80 youth participants and 80 caregivers recruited through community events. The PI and a trained graduate student attended public family events and through listservs around the greater Austin area. The principal investigator and/or graduate student would invite in person or via listservs one caregiver and a child to participate in a UT dissertation study investigating factors related to youth anxiety. The investigator would explain that it is completely voluntary, the child must be between the ages of 7-17, and both the caregiver and child must be able to read and write in English. Consent and confidentiality were reviewed. The investigator explained that the process entailed completing several questionnaires and that it would take less than one hour to complete the various forms and upon completion, the child would receive a \$10 gift Target or iTunes gift card. The investigator also discussed the option for the caregiver to be contacted to receive further testing with the potential to participate in a free ongoing anxiety treatment study at the should the child report elevated anxiety. The investigator and graduate student answered any questions during recruitment. If interested, participants signed consent forms and were given the packet and instructions for completion. If not interested, the potential participants were thanked.

### **Instrument administration**

The instrument administration was completed by a trained graduate student who explained the directions to the child and parent (for those at TCSC) and supervised measure completion. The parent also received a cover letter detailing information in the study. Examples of the cover letter and measures are included in Appendices H-L.

### ***Anxiety study project participants***

Relevant measures were obtained from the Anxiety Study Project's standardized measure protocol. Pertinent information for the evaluation in this study comprised the TCSC Demographic Questionnaire, Children's CCSC-R1 (PPR, 1999), STAI (Spielberger et al., 1970), FAM-III (Skinner et al., 1995), FASA-C, FASA-P (Lebowitz, 2012), MASC-C (March, 1997), and the SCARED-C (Birmaher et al., 1997).

For the purposes of this study, only the pre-treatment data was used. Data was collected as each new participant elected to participate in the treatment protocol set by the primary investigators of the Anxiety Study Project at TCSC. Participants were first contacted over the phone by a graduate student who explained the treatment study, answered questions about the process, and inquired about whether the parent was interested in their child potentially participating. If so, a graduate student gathered information about the child's age, gender, birthday, and inquired whether the parent would be willing to spend 10-20 minutes answering questions about their child's anxiety at that time or would like to have the graduate student call back at a more convenient time. At an agreed upon time, a graduate student read the SCARED (Parent version; (Birmaher et al., 1997) over the phone and recorded parental responses to the forty questions. If it appeared the child had elevated anxiety (overall score > 24; Panic Score > 7, GAD score > 7, SAD Score > 5, SoP Score > 8), the graduate student alerted the parent that the child appeared to have elevated anxiety and may be a good candidate for participation in treatment. The graduate student then invited the parent and child to come to TCSC for the next level of screening. If the child did not exhibit elevated anxiety on the SCARED-PR, the graduate student thanked the parent for their time and let them know to contact TCSC should they have any concerns about their child.

Potential participants (one parent and the youth) next came to TCSC and met with two graduate students for a more detailed interview using the ADIS (C or P; Silverman & Albano, 2004). The two graduate students met initially with both the parent and the youth and explained the process, reviewed and obtained consents, and explained the interview process. If the child and/or parent did not want to or was not able to continue, the graduate students thanked them both and ended the process. Once consents were obtained, the parent and youth were interviewed individually by one of the graduate students in separate rooms. The interview typically lasted two hours and participants were given breaks as needed. At the end of the process, the graduate students thanked the youth and parent and informed them that they would be contacted within 2 weeks with follow-up information from the interview. The graduate students scored both the ADIS-P and ADIS-C. In the case that the youth met exclusionary criteria or did not evidence a primary disorder of GAD, SAD, or SoP, the parent was called and informed that their child did not meet criteria for continued participation. If diagnostic criteria were met for GAD, SoP, and/or SAD, the child did not evidence exclusionary disorders, and the principal investigator agreed with the diagnosis/es, the parent was contacted and offered participation in the treatment study.

Qualified and interested participants returned to TCSC to initiate treatment with trained graduate student therapists. Participants were asked to come 30-45 minutes early to complete pre-treatment data before this first session. At this time, a trained graduate student provided materials, reviewed the measures with the child and parent, and supervised completion in a quiet room. Verbal instructions for all of the measures were given beforehand and children and their parent could complete them in any order. Completed pre-treatment data was collected in a

baseline folder, and trained graduate students reviewed assessments to ensure measures were completed and checked off on a list inside the folder.

### ***Community sample***

Packets including the Demographic Questionnaire, Children's CCSC-R1 (PPR, 1999), STAI (Spielberger et al., 1970), FAM-III (Skinner et al., 1995), FASA-C, FASA-P (Lebowitz, 2012), MASC-C (March, 1997), and the SCARED-C (Birmaher et al., 1997) were handed out to participants and their parents by the investigator and or a trained graduate student 1) after confirmation that they are a youth in the target age range and, 2) after a verbal indication of their willingness to participate. Clipboards and pens were also provided by the investigator. Parents and youth participants were encouraged to review the packet of materials and instructions, particularly the informed consent and benefits and risks section. Participants were only linked to their name temporarily if they opted to include their name and contact information on the demographic sheet in order to be reached for further screening to participate in a free anxiety treatment study. Once contacted for screening for the study (if applicable), contact information was removed and not connected to the data. Participants were provided a copy of the consent forms.

Once written consent was given by both parent and youth, the parent and youth were asked to fill out their respective questionnaires at the current time or they could take the packet with them and mail the completed packet in the pre-addressed envelope (without participant personal identification on the outside) to the Texas Child Study Center. The investigator or graduate student provided specific instructions and answered questions as needed. Parents usually took between fifteen and thirty minutes to complete their packets. Child participants took twenty to forty minutes to complete their packets. Compensation consisted of a \$10 gift card to

Target or iTunes and was given in person to those who filled out the questionnaires in the presence of the primary researcher or were mailed back in the self-addressed envelope included in the packet. The investigator also thanked the participants either verbally or with a non-identifying note with the compensation if their packet was mailed in. If the results of the anxiety disorder screening (SCARED-C) indicated the presence of anxiety symptoms in the child, then the parent was contacted via telephone and offered the opportunity to come to TCSC for an intake interview and possible inclusion in the ongoing anxiety treatment program. The parent was informed of this possibility in the study description (see Appendix H).

### **Data entry and storage**

Completed measures were kept in two locked file cabinets at TCSC. Similar to the Anxiety Study, assessments from the community sources have been kept in separate folders with a checklist of the completed measures. Measures were scored and entered by two trained undergrads; inconsistencies in scoring and entry were checked by the investigator. Unscored measures were kept in a larger folder that was labeled “To be scored.” Once scored, they were checked off (with date and undergraduate student initials) by two separate, trained students. Scored measures were kept in a larger folder that was labeled “To be entered.” Once entered, they were checked off (with date and undergraduate student initials). Once entered and there was agreement between scores and entries, the assessment folder was moved to a larger folder that was labeled “Completed.” All processes were documented with the data and initials of the investigator or trained students.

Undergraduate students were trained by the PI in de-identifying, scoring, and entering data. Undergraduate students were not informed of the specific research questions in this study. Data has been stored with encrypted software as protected documents.

## **RESEARCH QUESTIONS, HYPOTHESES, AND ANALYTIC STRATEGY**

### **Research Question 1**

Does family accommodation influence youth anxiety levels?

#### ***Hypothesis 1***

Family accommodation as assessed with the FASA will have statistically significant and positive direct effects on youth anxiety.

### **Research Question 2**

Does family dysfunction influence family accommodation and youth anxiety levels?

#### ***Hypothesis 2***

Family dysfunction as assessed with the FAM-III will have a statistically significant, positive direct effect on family accommodation as assessed with the FASA.

#### ***Hypothesis 3***

Family dysfunction as assessed with the FAM-III will have a statistically significant, positive direct and indirect effect on youth anxiety as measured by the MASC-C and SCARED-C.

### **Research Question 3**

Does parental anxiety influence family dysfunction, family accommodation, and youth anxiety?

#### ***Hypothesis 4***

Caregiver anxiety as measured by the STAI will have a statistically significant, positive direct effect on family dysfunction as assessed by the FAM-III.

#### ***Hypothesis 5***

Caregiver anxiety as measured by the STAI will have statistically significant, positive

direct effect on family accommodation as assessed by the FASA.

***Hypothesis 6***

Caregiver anxiety as measured by the STAI will have a statistically significant, positive direct and indirect effects on youth anxiety as assessed by the FASA.

**Research Question 4 (Exploratory)**

Does youth coping influence youth anxiety?

***Hypothesis 7***

Youth active coping as assessed with the CCSC-R1 will have negatively associated with youth anxiety, as measured by the MASC-C and SCARED-C.

***Hypothesis 8***

Youth avoidant coping as assessed with the CCSC-R1 will be positively associated with youth anxiety, as measured by the MASC-C and SCARED-C.

**Research Question 5 (Exploratory)**

Do family factors influence youth coping?

***Hypothesis 9***

Family factors in the model will have a significant and positive direct effect on avoidant coping: caregiver anxiety as measured by the STAI, family dysfunction as measured by the FAM-III, and Family Accommodation as measured by the FASA all will have a significant and positive direct effect on youth Avoidant Coping as measured by the CCSC-R1.

***Hypothesis 10***

Family factors in the model will have a significant and negative direct effect on active coping: caregiver anxiety as measured by the STAI, family dysfunction as measured by the

FAM-III, and family accommodation as measured by the FASA all will have a significant and negative direct effect on youth active coping as measured by the CCSC-R1.

### **Research Question 6 (Exploratory)**

Does youth coping mediate the effects of family factors and youth anxiety?

### ***Hypothesis 11***

Youth avoidant coping as assessed with the CCSC-R1 will mediate the effects of family factors in the model and youth anxiety.

### ***Hypothesis 12***

Youth active coping as assessed with the CCSC-R1 will mediate the effects of family factors in the model and youth anxiety.

## **ANALYTIC STRATEGIES**

### **Overview**

Latent variable structural equation modeling (SEM) was used to determine the magnitude of effects of parental anxiety, family functioning, and family accommodation on youth anxiety symptoms, controlling for gender. SEM was also used for the exploratory analysis of a more complex model that included active and avoidant coping as potential mediators in the initial model. The estimation of latent constructs with observed data allowed for modeling and control of measurement error, resulting in closer approximations of the constructs of interest by isolating the unreliability and invalidity (Keith, 2006).

The hypothesized latent variable SEM model (Figure 2) was developed to assess a new model of youth anxiety that included the effects of family functioning variables on the development and maintenance of anxiety symptoms. An exploratory complex model that was also preliminarily assessed is depicted in Figure 3. These models were based on previous



research on the effects of family factors on youth coping and youth anxiety (e.g., Barrett et al., 1996; Stark et al., 1990; Rapee, 2002; Wadsworth & Berger 2006; Wadsworth & Compas, 2002). In Figures 1 and 2, latent variables are represented with ovals and observed variables are indicated with rectangles. The model also includes the disturbances (also called residuals), which are small circles that represent all other sources of influence on the endogenous latent variables apart from those included in the model. Additionally, the full hypothesized measurement model includes small circles pointing to the measured variables are error terms representing the effect of all other influences on the measured variable beside the latent construct, including the effects of measurement error. These are not depicted in Figure 1 or Figure 2 for simplicity but are included in Figures 3 – 6. The paths from the latent to their corresponding measured variables, depicted by straight arrows, comprise the measurement component of the SEM, which is a confirmatory factor analysis of both the measured and latent variables. The straight arrows, or paths, between the latent variables and measured variables (not associated with a latent variable) indicate the hypothesized influence of one variable on another and represent the structural model. Refer to Table 2 for a review of the latent variables and their respective measured factors.

The current study analyzed covariance data produced by FIML estimation. A covariance matrix derived in AMOS served as input to analyze model fit and all direct and indirect effects. Covariance matrices enable modification indices and covariance residuals to be calculated. Examination of the modification indices and covariance residuals allowed this investigator to evaluate making potentially appropriate changes, such as adding further constraints, that would improve the model fit. Bootstrapping was also used in order to determine standard errors and statistical significance of indirect effects in the model.

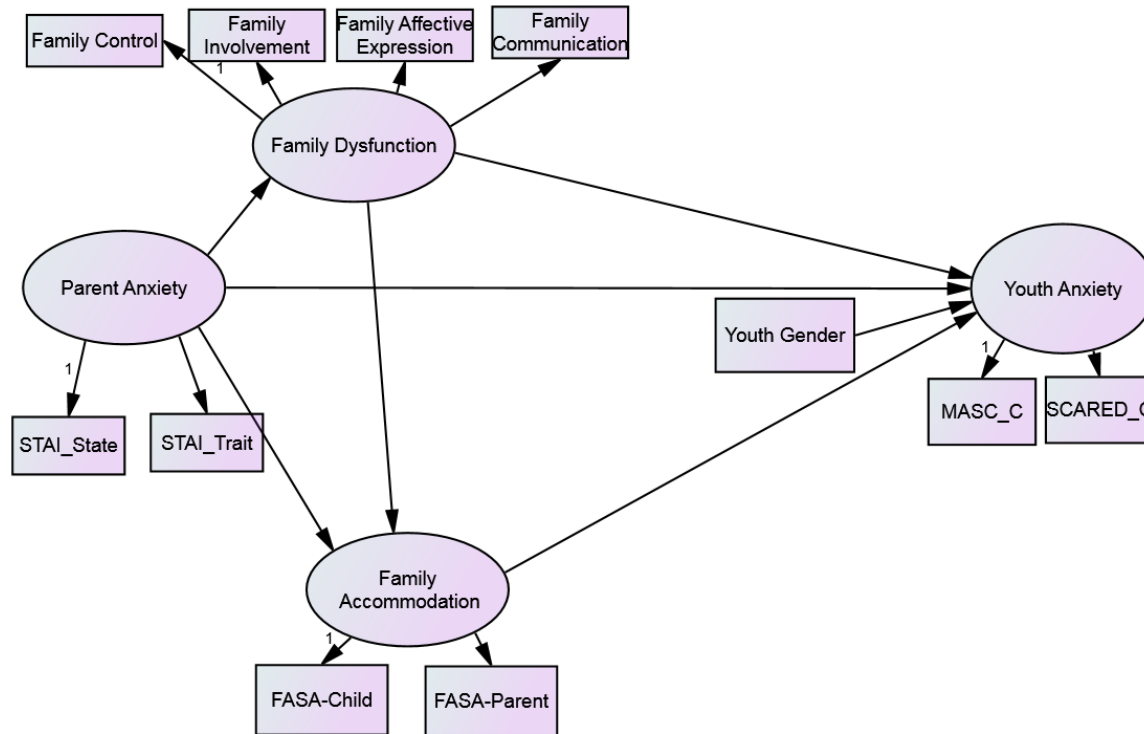
### **Evaluation of model fit**

The fit of the hypothesized model was assessed using a covariance matrix and several different fit statistics, including chi-square ( $\chi^2$ ), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), Tucker-Lewis Index (TLI), and comparative fit index (CFI). A small, non-significant  $\chi^2$  indicated that a model may be a good fit; however, due to problems with  $\chi^2$  as a measure of fit there was a need to consider other fit statistics of the model (Keith, 2006). RMSEA (Steiger, 1990) estimates approximate fit of the data with an RMSEA value of .05 or below suggests that the model is a good fit, while values between .05 and .08 suggest an adequate fit (Browne & Cudeck, 1993). Research indicates the SRMR is one of the best model fit indices (Hu & Bentler, 1999) and values around .08 and below suggest adequate to good model fit. The CFI and TLI compare the target model to a more restricted baseline model (Hu & Bentler, 1999). For the CFI and TLI, values above .95 suggest a good fit while values between .90 and .95 suggest an adequate fit (Keith, 2006; Kline, 2005).

To improve the hypothesized model, modification indices, expected change values, and standardized residuals were inspected. A modification index showed the minimum decrease in if a fixed parameter is freed, with values greater than 3.84 considered large (the critical value of  $\chi^2$  with  $df=1$  and an alpha of .05). Expected change values associated with the modification indexes reflected the expected values of parameters if parameters were freed. The standardized residual matrix indicates the difference between the observed covariance matrix and the reproduced covariance matrix. Modifications of the model was considered and made when there was a logical, theoretical base for making such a change. The model will be re-estimated making appropriate adjustments sequentially and compared to detect whether a significant improvement in fit resulted.

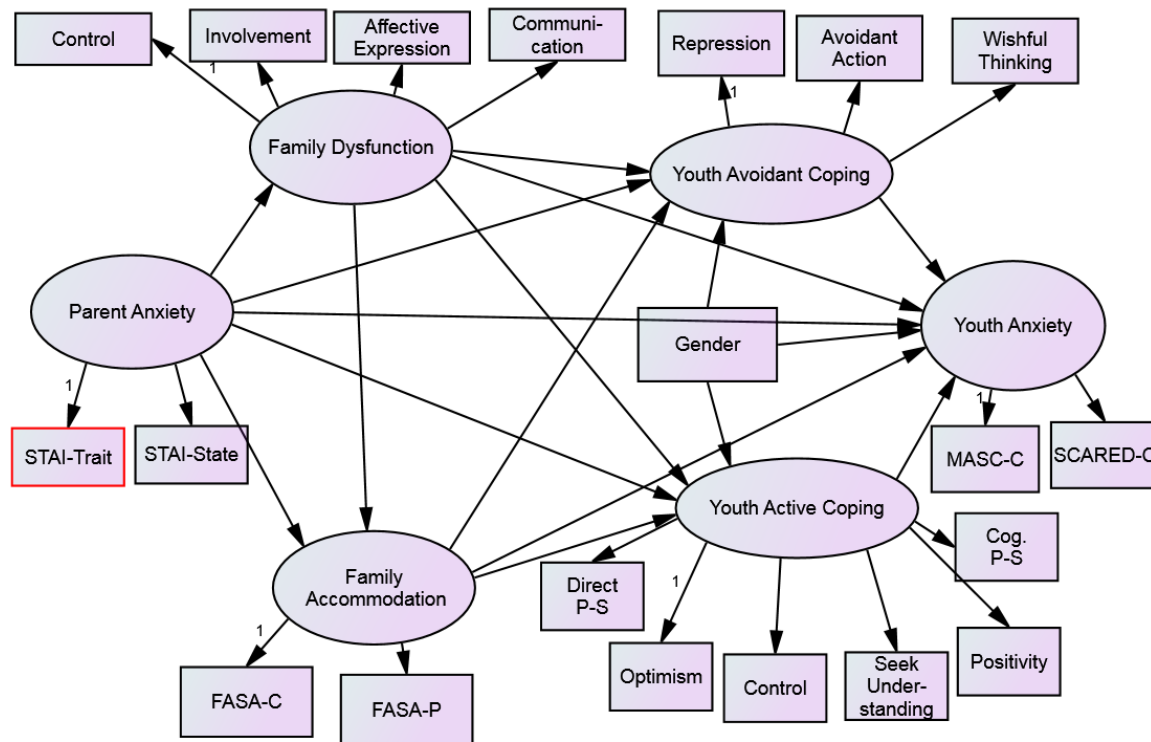
### ***Tests of effects***

The best fitting model was utilized to analyze the significance and magnitude of direct, indirect, and total effects. The significance of direct and total effects implied by the model was assessed using Amos. P-values less than .05 indicated a significant influence of direct, indirect, and total effects. To assess the statistical significance of the mediating effect of youth active coping and youth avoidant coping, tests of significance for indirect effects (Sobel, 1982) was utilized. The standardized direct, indirect, and total effects from the full SEM model were examined for parental anxiety, family functioning, and family accommodation on youth anxiety. The standardized direct effects of youth active and youth avoidant coping were also used to provide a preliminary assessment whether youth coping strategies mediated the effects of the family variables on youth anxiety. In this exploratory analysis it was hypothesized that both youth active and youth avoidant coping would partially mediate the effects of the family variables on youth anxiety.



*Notes:* The following observed measures will comprise the latent variables: Caregiver Anxiety: State and Trait Anxiety (STAI); Family Dysfunction: Communication, Involvement, Affective Expression, and Communication from the FAM-III; Family Accommodation: Family accommodation behaviors from the FASA-A rated by youth and caregiver; Youth Anxiety: MASC-C and SCARED-C.

Figure 1: Hypothesized Model of Family Influences on Youth Anxiety



*Notes:* The following observed measures will comprise the latent variables: Caregiver Anxiety: State and Trait Anxiety (STAI); Family Dysfunction: Communication, Involvement, Affective Expression, and Communication from the FAM-III; Family Accommodation: Family accommodation behaviors from the FASA-A rated by youth and caregiver; Youth Anxiety: MASC-C and SCARED-C.

Figure 2: Exploratory Hypothesized Model of Youth Coping and Youth Anxiety

## **Chapter IV: Results**

### **PRELIMINARY ANALYSES**

#### **Sample size**

Sample size required for an adequate amount of power (.80) was calculated utilizing the model's degrees of freedom as well as the desired power and RMSEA (Preacher & Coffman, 2006). Approximately 116 participants were required for the main analyses (38 degrees of freedom, a desired power of .8, and a null RMSEA of .05 and an alternative of .10). The current study had 130 participants and sample size was considered adequate. For the more complex, exploratory model that includes coping variables, approximately 50 participants were needed (153 degrees of freedom, a desired power of .8, and a null RMSEA of .05 and an alternative of .10). The exploratory study had 97 participants to assess the addition of a coping variable and sample size is considered adequate based on Preacher and Coffman's (2006) standards. However, the analysis of the expanded model is considered preliminary, as such a complex model with more parameters typically requires a larger number of participants for statistical power to accept or reject the model (Kline, 1998).

#### **Data preparation**

Using the Statistical Package for the Social Sciences (SPSS, version 22.0, 2013) composite variables from each measure were computed according to each of the validated measure's properties. Descriptive statistics and bar graphs of the data were examined. Data were inspected for univariate outliers, defined by scores more than three standard deviations beyond the mean. Only two outliers were found; upon inspection, they were incorrectly coded and they were corrected. Table 2 shows the descriptive statistics for the raw scores of all observed variables in the main analyses. Table 3 shows the descriptive statistics for the raw scores of all observed variables in the exploratory analyses.

Latent Variable	Measured Variable	Score		Min	Max	Mean	SD	N
		Range						
Caregiver Anxiety	Child Sex	1 - 2		1	2	1.51	0.50	129
	State Anxiety	0-80		20.00	59.00	33.54	10.24	128
	Trait Anxiety	0-80		20.00	59.00	36.41	9.72	128
Family Dysfunction	Control	0-15		.00	8.00	5.00	1.87	123
	Involvement	0-15		.00	7.00	2.79	1.96	123
	Affective Expression	0-15		.00	9.00	4.30	1.78	123
	Communication	0-15		.00	9.00	4.36	1.92	123
Family Accommodation	FASA - Child	0-36		.00	30.00	9.63	6.80	128
	FASA - Parent	0-36		.00	33.00	8.778	7.65	127
Youth Anxiety	MASC - Child	0-117		8.00	96.00	46.47	21.60	130
	SCARED - Child	0 - 82		3.0	73	31.56	16.90	123

*Notes:* FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997). Depending on the youth’s age, a total raw MASC score of >53-59 and total raw SCARED score of >25 indicate clinical levels of an anxiety disorder.

Table 3: Descriptive Statistics for Variables in Main Model

Latent Variable	Measured Variable	Score					
		Range	Min	Max	Mean	SD	N
Caregiver Anxiety	Child Sex	1-2	1	2	1.49	0.50	97
	State Anxiety	0-80	20	68	33.86	11.39	91
	Trait Anxiety	0-80	20	59	36.43	9.73	93
Family Dysfunction	Control	0-15	.00	9.00	4.12	1.99	93
	Involvement	0-15	.00	10.00	3.04	2.08	96
	Affective Expression	0-15	.00	9.00	4.51	1.80	97
	Communication	0-15	.00	9.00	4.43	2.02	95
Family Accommodation	FASA - Child	0-36	.00	26.00	9.67	6.60	97
	FASA - Parent	0-36	.00	29.00	8.34	7.58	96
Youth Anxiety	MASC - Child	0-117	8.00	96.00	44.56	20.66	97
	SCARED - Child	0-82	2.00	73.00	29.65	17.53	93
Avoidant Coping	Avoidant Action	0-4	1.00	4.00	2.40	.65	97
	Repression	0-4	1.00	4.00	2.22	.67	97
	Wishful Thinking	0-4	1.00	4.00	2.34	.71	97
Active Coping	Seek Understanding	0-4	1.00	4.00	2.24	.83	96
	Control	0-4	1.00	4.00	2.21	.69	96
	Optimism	0-4	1.00	4.00	2.41	.95	97
	Cognitive Decision Making	0-4	1.00	4.00	2.31	.69	97
	Direct Problem Solving	0-4	1.00	4.00	2.48	.70	97

*Notes:* FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997). Depending on the youth’s age, a total raw MASC score of >53-59 and total raw SCARED score of >25 indicate clinical levels of an anxiety disorder.

Table 4: Descriptive Statistics for Variables in Exploratory Model

### ***Descriptive inspection***

Scale distributions were then examined, assessing for skew and kurtosis. Absolute skewness values less than 2 and kurtosis values less than 7 indicated that all measured variables reflected recommended normal distribution levels and skew values between 2-3 and kurtosis values less than 10 were considered moderately non-normal (Curran, West & Finch, 1996; Kline, 2011). All of the variables were within the recommended range except: State Anxiety, (skew 2.5, kurtosis 1.66), FASA Parent (skew 3.7, kurtosis .86), and FASA Child (skew 3.0, kurtosis



.67). Logarithmic transformations (Kline, 2011) corrected the degree of skew and maintained acceptable kurtosis. Transformed variables for STAI State Anxiety (skew .5, kurtosis -.58), FASA Parent (skew -1.89, kurtosis .50), and FASA Child (skew -2.1, kurtosis .24) were used in subsequent analysis. Inspection of the correlation matrix found no unexpected relations among variables. See Appendix N and O for covariance matrices.

### ***Subset population comparison***

The means of the observed variables for the community and clinical subsets of the overall sample were also compared to see whether significant differences occurred between the two subsets. Table 5 displays the mean values, standard deviations of all observed variables for the community and clinical subsets of the main analysis sample, and the independent sample *t*-test and significance values. Table 6 displays the mean values, standard deviations of all observed variables for the community and clinical subsets of the exploratory analysis sample, and the independent sample *t*-test and significance values.

In the main analysis, there were significant differences between the means of the community and clinical subgroups on these measured variables: State Anxiety, Control, Affective Expression, FASA - Child, FASA – Parent, and the MASC, with the clinical samples having significantly higher mean scores on each measured variable. In the exploratory analysis, the clinical group had significantly higher mean scores on the observed variables in Affective Expression, Communication, FASA – Child and FASA – Parent. The community subgroup in the exploratory analysis had significantly higher means on the measured coping variables of Avoidant Action, Seek Understanding, Control, and Cognitive Decision Making. This suggests that the overall distribution of a combined sample may be less representative of a wide distribution of scores and more bimodal on these variables.

Latent Variable	Measured Variable	Community Subgroup Means and Standard Deviations (n=80)	Clinical Subgroup Means and Standard Deviations (n=50)	<i>t</i>	<i>p</i>
Caregiver Anxiety	State Anxiety	32.95 (11.30)	38.15 (10.07)	-2.58	.01*
	Trait Anxiety	36.35 (9.75)	38.68 (8.89)	-1.33	.19
Family Dysfunction	Control	4.06 (2.00)	5.07 (1.49)	-2.40	.02*
	Involvement	2.87 (2.08)	3.63 (1.85)	-1.75	.08
	Affective Expression	4.31 (1.71)	5.22 (1.92)	-2.39	.02*
	Communication	4.23 (2.02)	5.37 (1.73)	-2.73	.00**
Family Accommodation	FASA - Child	8.85 (6.03)	12.81 (6.67)	-3.80	.00**
	FASA - Parent	8.85 (6.58)	6.03 (7.23)	-7.90	.00**
Youth Anxiety	MASC - Child	43.59 (21.23)	54.32 (19.35)	-2.73	.01*
	SCARED - Child	30.23 (18.56)	28.41 (12.55)	.611	.54

*Notes:* \*  $p < 0.05$ ; \*\*  $p < 0.01$  FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997). Depending on the youth's age, a total raw MASC score of >53-59 and total raw SCARED score of >25 indicate clinical levels of an anxiety disorder.

Table 5: Community and Clinical Sample Mean Comparisons for Variables in Main Model

Table 6

*Community and Clinical Sample Mean Comparisons for Variables in Exploratory Model*

Latent Variable	Measured Variable	Community Subgroup Means and Standard Deviations (n=75)	Clinical Subgroup Means and Standard Deviations (n=22)	<i>t</i>	<i>p</i>
Caregiver Anxiety	State Anxiety	32.95 (11.30)	37.82 (11.28)	-1.61	.11
	Trait Anxiety	36.35 (9.75)	36.82 (9.75)	-1.79	.89
Family Dysfunction	Control	4.06 (2.01)	5.07 (1.69)	-1.77	.08
	Involvement	2.87 (2.08)	3.82 (1.91)	-1.77	.09
	Affective Expression	4.31 (1.72)	5.41 (1.97)	-2.34	.02*
	Communication	4.23 (2.01)	5.41 (1.73)	-2.25	.03*
Family Accommodation	FASA - Child	8.85 (6.03)	13.37 (7.90)	-5.73	.00**
	FASA - Parent	6.71 (6.58)	17.57 (6.28)	-7.90	.00**
Youth Anxiety	MASC - Child	43.59 (21.23)	49.40 (17.28)	-.99	.32
	SCARED - Child	30.23 (18.56)	26.75 (10.97)	.99	.32
Avoidant Coping	Avoidant Action	2.46 (.60)	2.14 (.74)	2.10	.04*
	Repression	2.27 (.66)	1.97 (.61)	1.57	.12
	Wishful Thinking	2.48 (.69)	2.36 (.81)	.72	.47
Active Coping	Seek Understanding	2.31 (.68)	1.93 (.81)	2.73	.01**
	Control	2.31 (.82)	1.76 (.56)	3.56	.00**
	Optimism	2.40 (.71)	2.42 (.71)	-.11	.91
	Cognitive Decision Making	2.41 (.67)	1.93 (.65)	2.58	.01*
	Direct Problem Solving	2.52 (.69)	2.30 (.71)	1.97	.06

Notes: \*  $p < 0.05$ ; \*\*  $p < 0.01$  FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997). Depending on the youth's age, a total raw MASC score of >53-59 and total raw SCARED score of >25 indicate clinical levels of an anxiety disorder.

Table 6: Community and Clinical Sample Mean Comparisons for Variables in Exploratory Model

**Missing Data**

The FIML estimation method in AMOS (Amos; Arbuckle, 2009) was used to address incomplete data in this study. FIML estimated a likelihood function for each individual based on the observed variables that are present so that all the available data are used (Enders & Bandalos, 2001; Wothke, 2000). FIML is viewed as an effective method for analyzing missing data (Keith,

2006; Enders & Bandalos, 2001). FIML was used to create a covariance matrix of measured variables, which was used in subsequent analyses. FIML was used in both the main and exploratory models.

### **Evaluation of model fit**

A number of fit statistics were used to evaluate how well the specified main model explained the data. See Table 5 for an overview of the utilized fit indices and goodness-of-fit ranges. Modification indices were analyzed to determine if any model changes should be made, given that those changes were justifiable based on theory. The first suggested modification of the model was to add a correlation between the measured variables of family involvement and child's report of family accommodation. This had a theoretical basis, as a child's perception of how often a parent helps them accommodate in anxiety-provoking situations could relate to how much and the quality of involvement a parent has in a child's everyday life. Parents with higher levels of involvement have more direct access and intervening participation in a child's life, which would enable them to do something to help their child reduce or avoid exposure in an anxiety-provoking situation (Barrett & Rapee, 1997; Leibowitz, 2013). The degree to which the family involvement is autonomy-promoting or fostering dependency also could affect how a youth perceives how often their parents help them in anxiety-provoking situations. Adding this correlation between child reports of accommodation and family control improved model fit and subsequently was included in the analysis (Model 2). The second modification recommended was to add a correlation between the measured variables family control and family affective expression. Adding this correlation also made sense, as the level of control in a family may dictate the rules and norms of how emotions are expressed, evidenced in the Process Model of Family Functioning (Steinhauer et al., 1984) and in a study by van Ort and colleagues (2009).

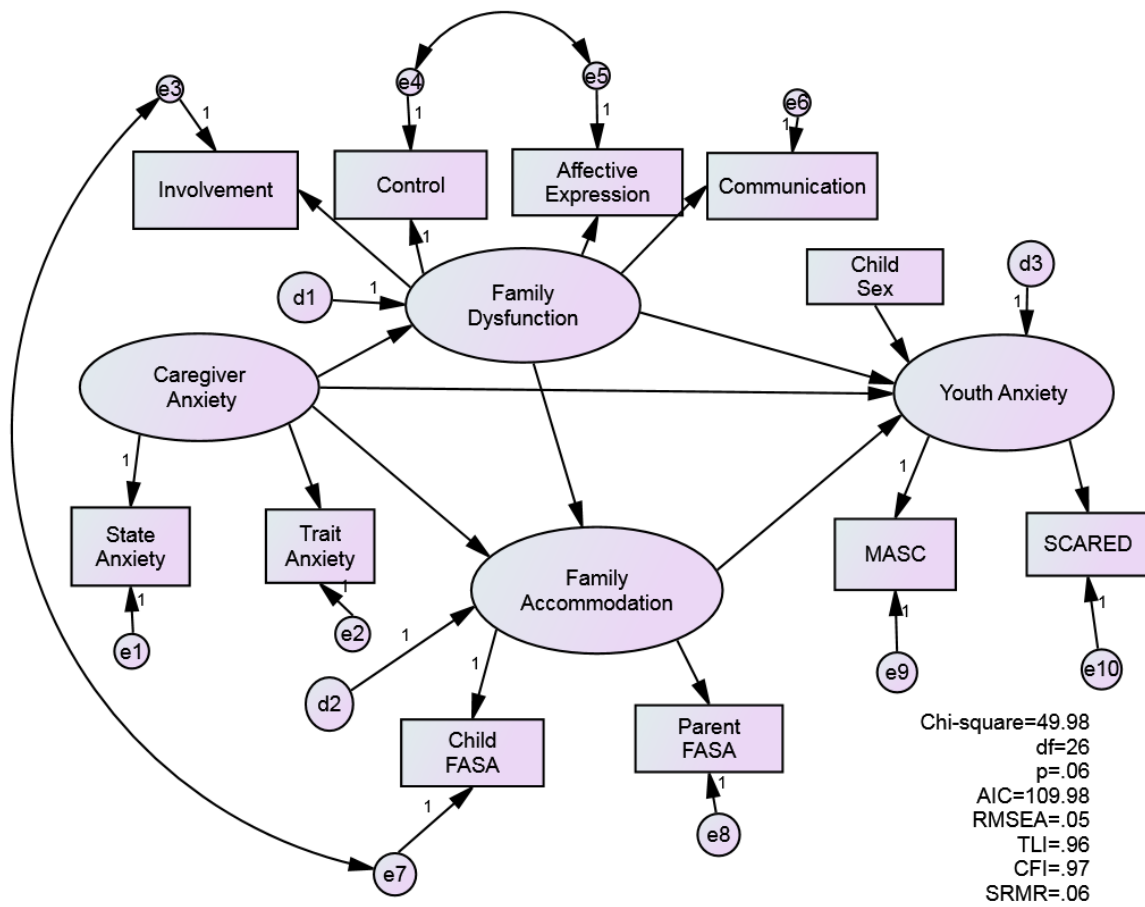
Analysis of fit statistics indicated adequate to good fit for all of the fit statistics (Table 7) with this final model (Table 8, Figure 3). This finding indicated that the model fit the data and that estimates of paths between latent variables could be interpreted and was used in later analyses.

	Good	Adequate	Poor
Chi-square	Non-significant	Non-significant	Significant
RMSEA	$\leq .05$	$\leq .08$	$\geq .10$
SRMR	$\leq .06$	$\leq .08$	$> .08$
CFI	$\geq .95$	$\geq .90$	$< .90$
TLI	$\geq .95$	$\geq .90$	$< .90$
AIC	Smaller is best (only used for comparing models)		

Table 7: Model Fit Indices

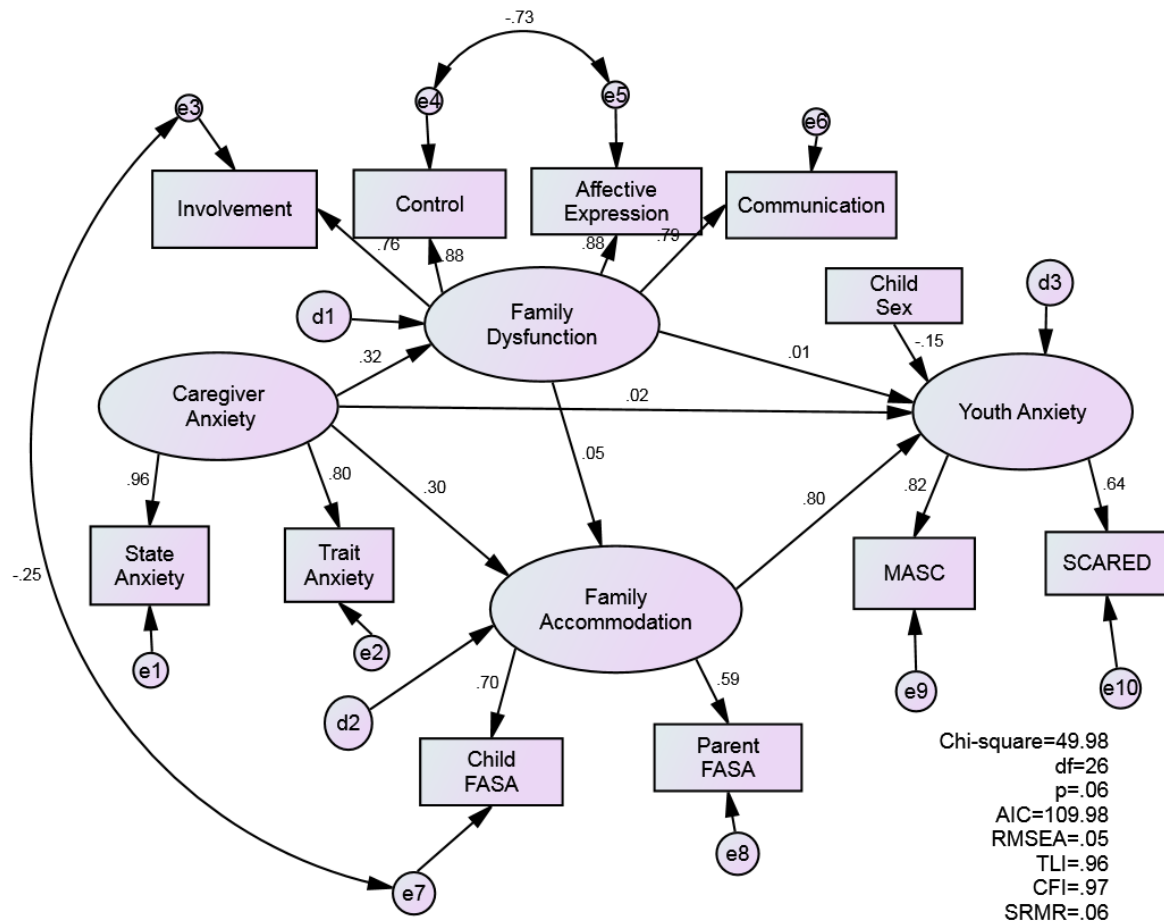
Model	$\chi^2$ (df)	$\Delta \chi^2$ (df)/p	AIC	RMSEA	TLI	CFI	SRMR
Hypothesized Model	65.17 (38)		121.72	.08	.93	.95	.07
Model 2	59.86 (37)	5.31 (2)/.02	97.16	.07	.94	.96	.07
Model 3	49.98 (36)	15.19 (1)/.00	109.98	.05	.96	.97	.06

Table 8: Fit Statistics for the Main Measurement Models



Notes: FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997).

Figure 3: Full Latent Variable Structural Equation Model (Model 3)



Notes: FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997).

Figure 4: Full Standardized Latent Structural Equation Model (Model 3)

### TESTS OF MAIN RESEARCH QUESTIONS

The main purpose of the current study was to gain a more comprehensive understanding of how caregiver anxiety, family dysfunction, and family accommodation influence each other and youth anxiety levels. This goal was achieved by analyzing three key research questions. The results for each of the research questions are described below. Because the scales of many of the latent variables are not practically meaningful (e.g., they refer to composite scores on various

scales), only the standardized estimates were interpreted in light of the research questions and hypotheses. Refer to Figure 4 for the full-standardized structural model that was used to analyze the main research questions.

### Research Question 1

Does family accommodation influence youth anxiety levels?

#### Results

It was hypothesized that family accommodation would have statistically significant and positive direct effects on youth anxiety. This hypothesis was supported. Family accommodation had a statistically significant, strong positive direct effect on youth anxiety levels (see Table 9). These findings indicated higher levels of family accommodation were associated with higher levels of youth anxiety. Based on the adequacy of this model, this data suggests that for every one standard deviation increase in how often a family accommodates a youth experiencing an anxiety-provoking situation, scores on youth anxiety level should increase by .80 of a standard deviation.

Path	$\beta$	<i>b</i>	<i>SE</i>	<i>p</i>
Family Accommodation → Youth Anxiety	.801	66.327	15.412	.000**

Note. \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 9: Paths of Interest for Research Question 1

### Research Question 2

Does family dysfunction influence family accommodation and youth anxiety levels?

#### Results

It was hypothesized that family dysfunction would have statistically significant, positive direct effects on both family accommodation and youth anxiety, with statistically significant,



positive indirect effects through partial mediation by family accommodation. These hypotheses were not supported. Family dysfunction did not have a statistically significant association with family accommodation or with youth anxiety. The direct effect from family dysfunction to family accommodation was not significant, indicating that family dysfunction did not indirectly influence youth anxiety through family accommodation. Bootstrapping and the Sobel test were used to further test the significance of the indirect effects of family accommodation on youth anxiety. The Sobel test was calculated using the unstandardized regression coefficients and their standard error to compute the statistical significance of indirect effects. A significant *p*-value for this ratio supports the hypothesis of mediation (Preacher & Leonardelli, 2014). The Sobel test and bootstrapping revealed indirect effects of family dysfunction on youth anxiety were not significant (see Tables 10 and 12). Family dysfunction did not have statistically significant direct effects on family accommodation or youth anxiety and did not have a statistically indirect effect on youth anxiety.

Path	$\beta$	<i>b</i>	<i>SE</i>	<i>p</i>
Family Dysfunction → Family Accommodation	.046	.006	.015	.703
Family Dysfunction → Youth Anxiety	.022	.116	1.018	.909

*Note.* \* *p* < 0.05; \*\* *p* < 0.01

Table 10: Paths of Interest for Research Question 2

### Research Question 3

Does caregiver anxiety influence family dysfunction, family accommodation, and youth anxiety?

### Results

It was hypothesized that caregiver anxiety would have statistically significant, positive direct effects on family dysfunction, family accommodation, and youth anxiety. It was also

hypothesized that caregiver anxiety would have statistically significant indirect effects through family dysfunction and family accommodation on youth anxiety. These hypotheses were partially supported (Table 11). Caregiver anxiety had statistically significant, moderate positive direct effects on both family dysfunction and family accommodation: higher levels of caregiver anxiety were associated with higher levels of family dysfunction and family accommodation. Based on the adequacy of this model, these results suggest that for each increase in one standard deviation in caregiver anxiety, family dysfunction scores should increase by .316 of a standard deviation and family accommodation scores should increase by .302 of a standard deviation. Caregiver anxiety did not have statistically significant direct effects on youth anxiety.

Although the direct effect of caregiver anxiety on family dysfunction was statistically significant, the direct effect of family dysfunction on youth anxiety was not significant. These findings align with the results of both bootstrapping and the Sobel test that found the indirect effect of caregiver anxiety on youth anxiety via family dysfunction was not significant. The statistically significant and moderate direct effects from caregiver anxiety to family accommodation and family accommodation to youth anxiety suggested potentially significant indirect effects of caregiver anxiety on youth anxiety through family accommodation. Bootstrapping and the Sobel test revealed the indirect effect of youth anxiety through family accommodation was significant. Caregiver anxiety did not have a statistically significant direct effect, suggesting that family accommodation totally mediates the relationship between caregiver anxiety on youth anxiety. The results indicate that the influence of parental anxiety is enhanced by increases in family accommodating behaviors. Parents with higher anxiety levels engage in behaviors that accommodate their youth's anxiety more frequently, but their attempts to alleviate their child's anxiety actually leads to higher levels of youth anxiety.

Overall, these results indicate while caregiver anxiety did not have a significant direct effect on youth anxiety, caregiver anxiety did have significant total and indirect effects on youth anxiety through the mediating effects of family accommodation.

Path	$\beta$	<i>b</i>	<i>SE</i>	<i>p</i>
Caregiver Anxiety → Family Dysfunction	.316	4.154	1.328	.002**
Caregiver Anxiety → Family Accommodation	.302	.487	.211	.021*
Caregiver Anxiety → Youth Anxiety	.016	2.135	15.128	.888

*Note.* \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 11: Paths of Interest for Research Question 3

Latent or Measured Variable	Direct Effect	Indirect Effect	Total Effect
Caregiver Anxiety	.016	.257*	.273*
Family Dysfunction	.011	.037	.048
Family Accommodation	.801**	--	.801**

*Note.* \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 12: Standardized Direct, Indirect, and Total Effects on Youth Anxiety

## MODEL ADJUSTMENTS AND TESTS OF EXPLORATORY RESEARCH QUESTIONS

### Overview

A secondary goal of this study was to complete a preliminary analysis of a more complex model that explores the relationships between family factors, youth avoidant and active coping, and youth anxiety. In order to simplify the model to better match the smaller sample size, model adjustments were made based on the findings in the main part of the study.

### Model fit

A number of adjustments to the original model were made in order to make a preliminary analysis in this exploratory model. Reducing the number of parameters estimated and trimming a

model are two ways to attempt to fit and analyze a model (Klein, 2011; Preacher & Kenny, 2006). Adjustments were made based on the findings of the main research question results and on factor loadings. First, the model was trimmed to include only variables that had significant effects specifically on the outcome variable youth anxiety; family dysfunction and child sex were not common causes and were therefore removed. Secondly, factor loadings were then inspected for the observed variables. Repression had a low factor loading onto the latent variable avoidant coping ( $\beta = .19$ ,  $p = .122$ ) and was removed. Removing Repression resulted in improved model fit (Model 2).

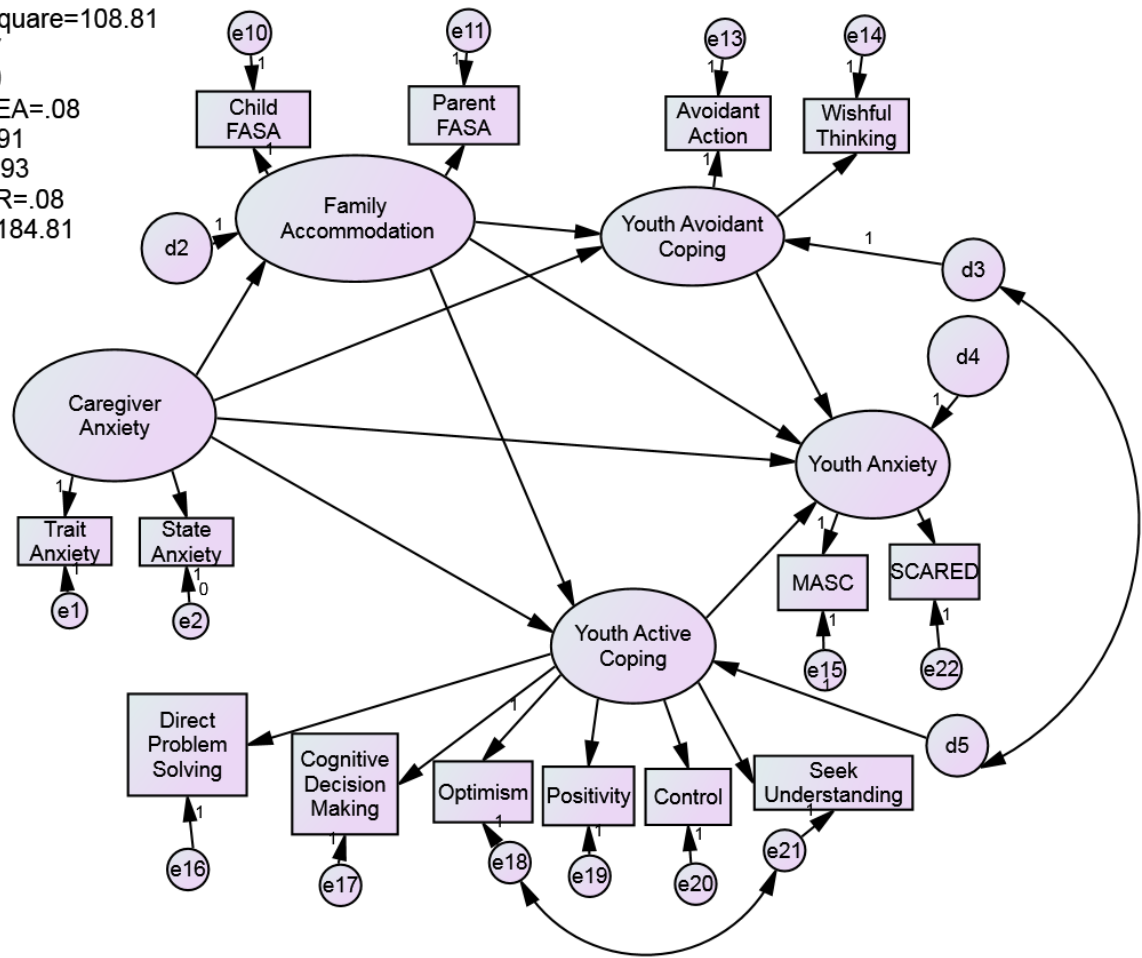
Modification indices were analyzed to determine if any additional model changes should be made, given that those changes were justifiable based on theory. The primary suggested modification of the model was to add a correlation between the measured variables of Seek Understanding and Optimism. Both variables load onto the same latent variable active coping, which indicates they may share a relationship with a third, unmeasured construct. As their high factor loadings were both significant for the active coping latent variable, they were retained in the model as indicators ( $\beta = .71$ ,  $p = .000$  for Seek Understanding;  $\beta$ ,  $p = .000$  for Optimism). As measured by the CCSC-R1, both Seeking Understanding and Optimism tap into cognitive strategies that attempt to make meaning from an anxiety-provoking situation to understand and handle it (Sandler, 2000). Therefore Seek Understanding and Optimism may have a relationship around cognitive processing as a strategy to cope with a situation, with Optimism serving to be a specific way to positively restructure and find understanding and solace in a situation. As this made theoretical sense, the recommended correlation was added between Seek Understanding and Optimism and adequate-to-good model fit was found (see Table 7 and Table 13). Model 3 (Figure 5) was used in the subsequent analyses. Although adequate model fit was achieved, the

path analysis remains exploratory and indicates potential areas of influence to continue to focus on in future research with a larger sample size. The small sample size and model modifications are limitations to this exploratory study.

Model	$\chi^2$ (df)	$\Delta \chi^2$ (df)/ <i>p</i>	AIC	RMSEA	TLI	CFI	SRMR
Hypothesized Model	145.62 (81)		223.63	.09	.86	.90	.08
Model 2	131.81 (80)	13.81 (1)/.00	211.80	.08	.90	.92	.07
Model 3	108.81 (67)	36.81 (14)/.00	184.81	.08	.91	.93	.07

Table 13: Fit Statistics for the Exploratory Measurement Models

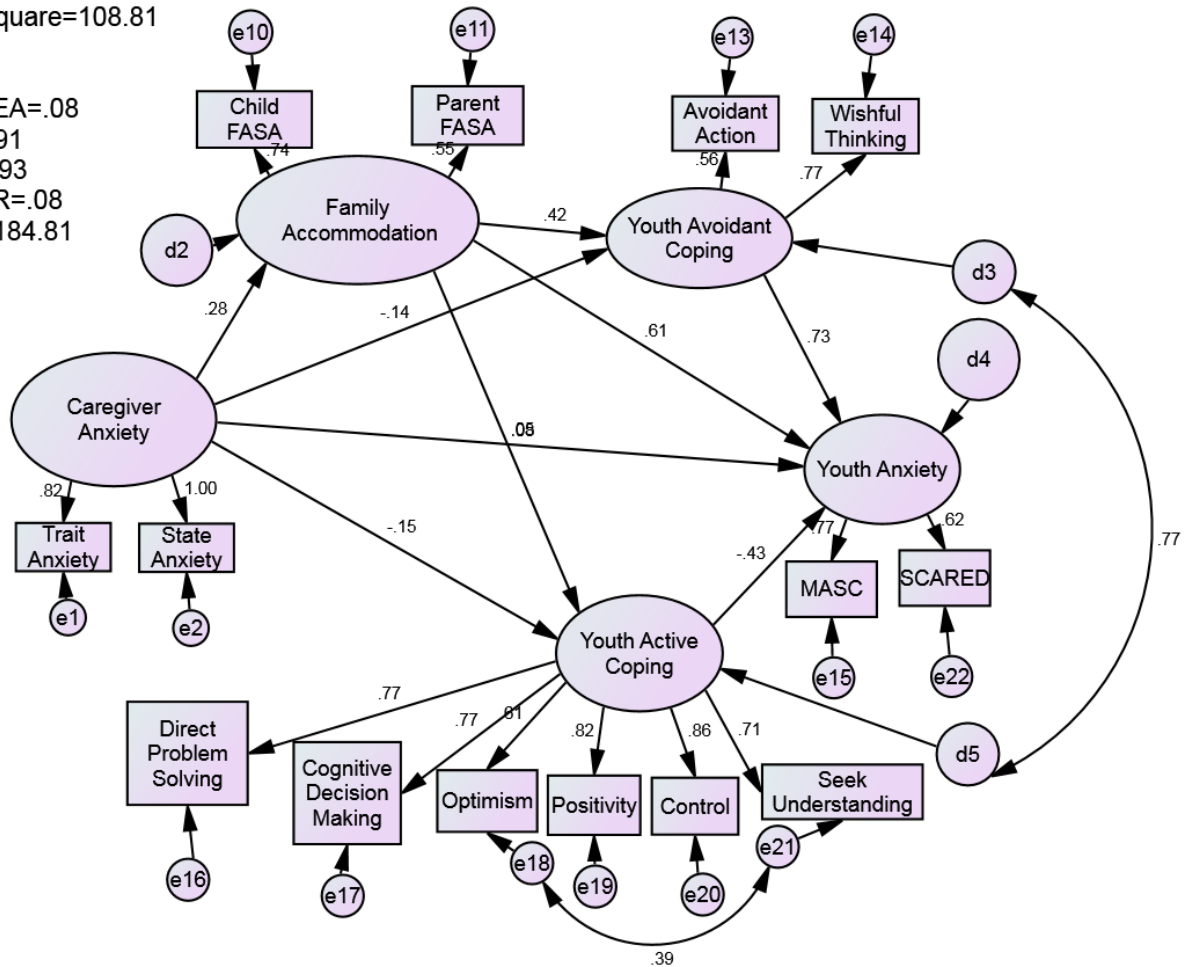
Chi-square=108.81  
df=67  
p=.00  
RMSEA=.08  
TLI=.91  
CFI=.93  
SRMR=.08  
AIC=184.81



*Notes:* FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997).

Figure 5: Exploratory Full Latent Variable Structural Equation Model

Chi-square=108.81  
df=67  
p=.00  
RMSEA=.08  
TLI=.91  
CFI=.93  
SRMR=.08  
AIC=184.81



Notes: FASA = Family Accommodation Scale – Anxiety, rated by child and parent; Lebowitz, 2012). MASC-C = Multidimensional Anxiety Scale for Children-Child Report (March, 1997). SCARED Child = Screen for Child Anxiety Related Emotional Disorders – Child Version (Birmaher et al., 1997).

Figure 6: Exploratory Full Standardized Latent Structural Equation Model

### Tests of exploratory research questions

As the model was adjusted from the original to retain only the factors that had statistically significant influences on the main outcome variable youth anxiety, the following hypotheses and analyses examined only caregiver anxiety, family accommodation, active and avoidant coping, and youth anxiety. Because the scales of many of the latent variables are not practically meaningful (e.g., they refer to composite scores on various scales), only the standardized estimates were interpreted in light of the research questions and hypotheses. Refer

to Figure 6 for the full standardized structural model that was used to analyze the main research questions.

#### ***Research question 4 (exploratory)***

Is youth coping associated with youth anxiety?

#### ***Results***

It was hypothesized that active coping would be negatively associated with youth anxiety and avoidant coping would be positively associated with youth anxiety. Results did not provide support for these hypotheses. While avoidant coping had a positive direct association with youth anxiety that was near significance (.06), this result was not statistically significant at the .05 level. Although active coping did have a small and negative direct influence on youth anxiety, suggesting higher scores on active coping were associated with lower anxiety levels, it was also not statistically significant (Table 14).

Path	$\beta$	<i>b</i>	<i>SE</i>	<i>p</i>
Avoidant Coping → Youth Anxiety	.729	31.59	17.325	.067
Active Coping → Youth Anxiety	-.435	-11.82	.083	.170

*Note.* \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 14: Paths of Interest for Research Question 4

#### ***Research question 5 (exploratory)***

Are family factors in the model associated with youth coping?

#### ***Results***

It was hypothesized that family factors (caregiver anxiety, family dysfunction, and family accommodation) from the original model would all positively influence avoidant coping and negatively influence active coping. From the modified model that removed family dysfunction,



it was hypothesized that both caregiver anxiety and family accommodation would have a significant and positive direct effect on avoidant coping and a significant and negative direct effect on active coping. These exploratory hypotheses were partially supported (Table 15). Caregiver anxiety did not have a statistically significant positive association with avoidant coping. Results indicated instead that caregiver anxiety had a small, negative, but not significant effect on active coping. Caregiver anxiety did not have a statistically significant negative effect on active coping.

Family accommodation had a statistically significant, moderate and positive association with avoidant coping. These results suggested that one standard deviation increase in family accommodation scores would result in an increase in avoidant coping scores by .421 of a standard deviation. This is a tentative finding as it is based on the accuracy of the model. Family accommodation did not have a statistically significant negative association with active coping. Results indicated instead that family accommodation had a small, positive, but not significant effect on active coping.

Path	$\beta$	<i>b</i>	<i>SE</i>	<i>p</i>
Caregiver Anxiety → Avoidant Coping	-.138	-.006	.006	.305
Caregiver Anxiety → Active Coping	-.148	-.011	.008	.202
Family Accommodation → Avoidant Coping	.421	.661	.307	.031*
Family Accommodation → Active Coping	.081	.203	.362	.575

*Note.* \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 15: Paths of Interest for Research Question 5

***Research question 6 (exploratory)***

Do avoidant coping and active coping mediate the associations between family factors in the model and youth anxiety?

## *Results*

It was hypothesized that avoidant coping would partially mediate the association between caregiver anxiety and youth anxiety and family accommodation and youth anxiety. It was also hypothesized that active coping would partially mediate the association between caregiver anxiety and youth anxiety and family dysfunction and youth anxiety. These hypotheses were not supported (see Table 16). Caregiver anxiety did not have significant direct effects on Active or Avoidant coping, indicating there was not a mediating effect for either coping variable. Bootstrapping and the Sobel test confirmed active coping and avoidant coping do not mediate the influences of caregiver anxiety on youth anxiety. Caregiver anxiety did have significant total effects on youth anxiety. This suggests that while caregiver anxiety does not have significant direct or indirect effects on youth anxiety, it has overall statistically significant total effects through the combination of multiple influences both directly and indirectly.

Active coping did not have a significant direct effect on the outcome variable youth anxiety and family accommodation variable did not have a statistically significant direct effect on the mediating variable of active coping, indicating it was not a mediator (Preacher & Leonardelli, 2010). Bootstrapping and the Sobel test confirmed that active coping as a mediator variable in this model between family accommodation and youth anxiety was not significant. Although family accommodation had a statistically significant direct effect on both avoidant coping and youth anxiety, active coping did not have a statistically significant effect on the outcome variable youth anxiety, suggesting there was not a mediating effect. Bootstrapping and the Sobel test confirmed this mediation was not significant. While the overall indirect effect of family accommodation was significant, the respective indirect effects of family accommodation on youth anxiety through avoidant and active coping were not significant separately. Family

accommodation's statistically significant overall total effects on youth anxiety result from the combination of its multiple direct and indirect influences.

Latent or Measured Variable	Direct Effect	Indirect Effect	Total Effect
Caregiver Anxiety	.046	.209	.255*
Family Accommodation	.608*	.271**	.879**
Avoidant Coping	.729	--	.729
Active Coping	-.435	--	-.435

*Note.* \*  $p < 0.05$ ; \*\*  $p < 0.01$

Table 16: Standardized Direct, Indirect, and Total Effects on Youth Anxiety

## **Chapter V: Discussion**

This study investigated the degree to which caregiver anxiety, family dysfunction, and family accommodation both directly and indirectly influence the severity levels of youth anxiety. A secondary goal was to investigate how family factors affect youth coping strategies (avoidant or active) and whether coping strategies were a mediating factor between family factors and youth anxiety levels. The study aimed to expand research on youth anxiety disorders and provide a better understanding of particular family factors that may influence youth anxiety severity. Another aim was to provide an initial analysis of the connections between family factors, youth coping, and youth anxiety as a basis for continued research investigating an expanded model of youth anxiety.

### **Summary of Results**

There were three main research questions: (1) Does family accommodation influence youth anxiety levels? (2) Does family dysfunction influence family accommodation and youth anxiety levels? (3) Does caregiver anxiety influence family dysfunction, family accommodation, and youth anxiety? This study also had three exploratory research questions: (4) Does youth coping influence youth anxiety? (5) Do family factors influence youth coping? (6) Does youth coping mediate the effects of family factors on youth anxiety?

Results from this study supported evidence for specific family factors that influence youth anxiety, with particularly significant findings of the important effects of family accommodation on both avoidant coping and youth anxiety. In contrast with the hypothesized models, findings from this study indicated family dysfunction, active coping, avoidant coping, and gender were not important influences on youth anxiety levels and may not need to be included in a model of youth anxiety. Instead, results suggest caregiver anxiety and family

accommodation are important influences on youth anxiety and should be considered in a model of youth anxiety. In the following sections, key findings from the study will be discussed, limitations of the study will be addressed, and future directions for research and clinical practice will be offered.

### **THE IMPORTANCE OF FAMILY ACCOMMODATION**

A major finding from this study was the significant influence of family accommodation in a model of youth anxiety. The latent variable family accommodation was comprised of two observed composite variables that measured perceived frequency of family accommodation by the youth and the parent, respectively. In both analyses, the latent variable family accommodation had a statistically significant, large direct effect on youth anxiety, another latent variable comprised of two youth self-report measures of youth anxiety severity. This significant and large effect is convergent with prior findings on the influences of family accommodation on youth anxiety levels: as families increase frequency of how often they accommodate or help reduce distress for a youth in a potentially anxiety-provoking situation, youth anxiety severity is expected to also increase (Jones, 2013; Jones et al., 2015; Lebowitz, et al., 2015).

This study continues to deepen the relatively small but expanding research base on family accommodation. In particular, this study builds evidence for the effects of family accommodation specifically on youth anxiety (Jones, 2013; Jones et al., 2015; Lebowitz, 2013; Lebowitz et al., 2013; Lebowitz et al., 2015), as much of the prior research was focused on family accommodation and OCD (Lebowitz, 2010; Peris et al., 2008; Storch, 2007). By using both clinical and community samples, this study also provided additional support for the connection between frequency of family accommodation and youth anxiety levels that occurs across a wide distribution of non-anxious and anxious families (Jones, 2013; Jones et al., 2015).

Very few parents indicated they provided no accommodation to their child's anxiety, which adds to prior evidence suggesting that family accommodation could occur in a variety and majority of households (Jones, 2013; Jones et al., 2015; Lebowitz, 2013). This indicates caregivers have an inclination to protect their child from distress, which until a certain level could be healthy and developmentally appropriate, but that too-frequent accommodation could be detrimental. While it was outside of the scope of this study to examine whether a certain level or duration of family accommodation lead to elevated anxiety, it does suggest that higher levels of family accommodation could be a risk factor for youth anxiety severity. Longitudinal studies of family accommodation could help assess such critical questions.

This study expands on prior research examining the external influences on family accommodation. While this study is consistent with prior research demonstrating a significant influence of caregiver anxiety on family accommodation (Jones, 2013; Jones et al., 2015; Lebowitz, et al., 2015), this is the first study to investigate whether other external family variables impacted family accommodation levels. In particular, this study found evidence that family accommodation was not significantly influenced by family dysfunction, despite the strong influences of caregiver anxiety on both family dysfunction and family accommodation. This finding pushes for continued investigation of a system-based model exploring other factors in addition to caregiver anxiety that may increase family accommodation practices to levels that put youth at risk for elevated anxiety.

This study also extends the research base on family accommodation by investigating its effects on other intermediate factors previously found to be related to anxiety. Noteworthy are the suggested findings of the effects of family accommodation on avoidant and active coping in the exploratory portion of the modified model, as this is the first study to make a preliminary

examination of the relationship between family accommodation and youth coping. In a more complex model that explored the relationships between caregiver anxiety, family accommodation, avoidant coping, active coping, and youth anxiety, family accommodation had a significant moderate positive effect on avoidant coping. The avoidant coping variable consisted of two composite variables that measured the avoidant coping strategies wishful thinking and avoidant action (Sandler, 2000). This indicated that higher frequencies of families intervening or alleviating youth in perceived anxiety-provoking situations were associated with higher endorsements of avoidant coping strategies in youth.

Surprisingly, family accommodation was not significantly associated with lower levels of active coping strategy use. The active coping latent variable consisted of the composite measures of direct problem solving, cognitive decision making, optimism, positivity, control, and seeking understanding (Sandler, 2000). These initial analyses indicate that the degree of family accommodation has a larger and significant influence on youth endorsement of avoidant coping strategies but does not negatively or positive affect the use of active coping strategies, as measured in this exploratory model. This preliminary finding warrants further investigation and could elucidate the multiple effects that family accommodation has on other factors. Further investigation could also provide a more comprehensive understanding of which factors, in combination with accommodation, negatively impacts youth anxiety.

While the direct relationships between family accommodation and avoidant and active coping have not been explored in the literature, the significant effect of family accommodation solely on an avoidant coping style is consistent with other related research. Past studies have indicated caregiver behaviors, such as overprotection and communicating doubt about a child's coping efficacy, can reinforce the use of youth avoidant coping (Barrett et al., 1996; Dadds et al.,

1996), whereas selective, skill-enhancing support by caregivers can help enforce youth selecting more active, adaptive strategies (Carothers et al., 2006). The findings from the current exploratory study provide tentative support for parental intervening behaviors that are related to higher use of avoidant strategies, which have been shown to be related to higher anxiety levels in youth (Barrett & Rapee, 1996; Ebata & Moo, 1991; Gaylord-Harden & Cunningham, 2009; Houtzer et al., 2004). Specifically, more frequent family accommodation of a youth's anxiety, including behaviors such as providing reassurances, assisting a child in avoiding a distressing situation, and modifying a schedule or routine because of a child's anxiety (such as avoiding people, places, or situations that are challenging to the child), appear directly related to increased use of avoidant strategies.

The specific mechanisms through which accommodating behaviors lead to a youth engaging in more avoidant strategies are not clear from this exploratory study. However, prior research suggests potential explanations. Increased use of accommodating behaviors could teach avoidance as a useful strategy to the child. This supposition is supported by Social Learning Theory's premise that youth learn from modeling, observation, and imitation from others in their environment (Bandura, 1973; Kendal et al., 2004; Ormand, 2000), in which youth look to others for clues on how to respond, particularly in novel and ambiguous situations (Klennert et al., 1983). This possible explanation of learning avoidance through accommodation also tracks with previous findings that parental modeling of ineffective coping skills and avoidance are linked to similar strategy use by youth (Miller et al., 1994; Rapee, 2002).

A second possible method through which family accommodation influences avoidant coping is through transmission and reinforcement of negative cognitions related to anxious schemata (Beck, 1982; Chorpita & Barlow, 1998; Stark et al., 1990). Frequent accommodation



of a youth's anxiety could send consistent messages about the youth's vulnerability and low self-efficacy in being able to handle distress appropriately. These negative appraisals of vulnerability and an impaired sense of autonomous coping efficacy (Chorpita & Barlow, 1998) could lead youth to be more reliant on avoidant strategies that immediately reduce their distress tolerance and reinforce reliance on others due (Bogels & Brechman-Toussaint, 2006; Hudson et al., 2008).

Interestingly, avoidant coping or active coping did not mediate the effects of family accommodation. However, it is noteworthy that the Sobel test indicated a potential and partial mediating effect of avoidant coping between family accommodation and youth anxiety at the significance level of .10. While not acceptable at this study's determined significance cutoff of .05, its near significance tentatively suggests that higher frequencies of family accommodation lead youth to employ more avoidant coping strategies, which enhances the likelihood that the youth will have higher anxiety levels. The lack of a significant mediating factor by active coping strategies suggests that the presence of active coping does not buffer the effects of family accommodation on youth anxiety. These preliminary findings did not indicate that higher frequency of family accommodation was related to active coping, which in turn, did not reduce or increase youth anxiety levels. Due to the limitations of the sample size, the potential mediating effects of coping should be examined further and could highlight the importance of reducing avoidant coping strategy use and family accommodation and increasing active coping strategy use in prevention and intervention programs.

#### **THE MULTIPLE INFLUENCES OF CAREGIVER ANXIETY**

Another main question from this study focused on examining the influences of caregiver anxiety on other family factors in the model and on youth anxiety. The caregiver anxiety latent variable was comprised of the two measured variable composites trait anxiety and state anxiety.

It was hypothesized that caregiver anxiety would have significant direct and indirect effects on youth anxiety via positive influences on family dysfunction and family accommodation. Results found that caregiver anxiety was a highly influential factor for both family factors included in this model and on youth anxiety. These findings indicated it is critical to consider the myriad effects of caregiver anxiety on a family system, parental behaviors, and youth outcomes and to include it in etiological models of youth anxiety.

The study results found significant and positive direct relationships between caregiver anxiety and the family variables family dysfunction and family accommodation. Specifically, these results are consistent with previous research identifying the importance of far-reaching negative influences of caregiver anxiety on a family. Results provide strong evidence for the associations between caregiver anxiety and increased use of family accommodation (Jones, 2013; Jones et al., 2015; Lebowitz et al., 2013) and on various similar measurements of family dysfunction (Scales and Leffert, 2004; Cook et al., 2005; Cohen & Wills, 1985; Orme et al., 2006). This study extended the literature on the negative impacts of parental anxiety on the combination of certain aspects of family dysfunction into a latent variable. Namely, this study enhances the understanding of caregiver anxiety's significant and detrimental effects on a family's level of functioning as assessed by its family's communication, control, involvement, and affective expression. While family dysfunction did not significantly affect the outcome variable of youth anxiety, other research could investigate the deleterious effects of caregiver anxiety and family dysfunction on a variety of other outcome variables of interest.

While it did not have a significant direct influence on youth anxiety, caregiver anxiety had significant total and indirect influences on youth anxiety. The lack of direct significant effects on youth anxiety conflict with results that have found direct effects (see McClure et al.,

2001 for a review), but its overall significance through indirect and total effects is convergent with other empirical evidence (Barlow, 2002; Siqueland et al., 1996; Whaley et al., 1999). It was also found that caregiver anxiety's main indirect effect was through family accommodation, which was found to be a significant mediator in this model between caregiver anxiety and youth anxiety in the main analysis. The significant mediating effect of family accommodation between caregiver anxiety and youth anxiety is consistent with other empirical findings (Jones, 2013; Jones et al., 2015). These results suggest that increases in caregiver anxiety lead to higher youth anxiety through its strong influences on frequency of family accommodation.

Caregiver anxiety also did not have significant effects on avoidant or active coping in the exploratory model. While some studies have found evidence for the direct correlation between caregiver anxiety and the use of specific coping strategies (Simpson, 2011), these results appear to be consistent with other empirical evidence that have found that it is the combination of parental anxiety plus other behaviors (such as coaching, modeling, or intervening behaviors) that may lead to the use of more or less adaptive coping strategies (Barrett et al., 1996; Buckley, 2003; Campbell & Woodruff-Borden, 2009; Gil et al., 1991).

It is important to consider that the results could have been affected by only having one caregiver's anxiety measurement included in the study. This is a specific limitation that other studies have also faced (Turner et al., 1987; Whaley et al., 1999). The overall influences of caregiver anxiety may be better detected by including all caregivers who live in the home in the latent construct. While this study attempted to get a specific and accurate depiction of a primary caregiver's state and trait anxiety levels, another caregiver's anxiety level could potentially influence family factors in the model and relate to youth coping and anxiety levels. Future

studies could include multiple main caregivers' anxiety levels as separate latent variables to detect potential direct and indirect effects of caregiver anxiety that is present in a household.

In sum, in this model as discussed previously, it appears that caregiver anxiety does play a complex role in the trajectory of youth anxiety, but that its main effects are transmitted through its strong influences on parent behaviors (such as family accommodation) that appear highly associated with coping and anxiety outcomes.

### **THE NON-SIGNIFICANCE OF FAMILY DYSFUNCTION**

Family dysfunction, a latent variable measured by the theoretically relevant variables of family communication, affective expression, control, and involvement, was not an influential part of this model. The analysis of the effects of family dysfunction on family accommodation was unique to this study. Unexpectedly, the presence of family dysfunction did not have statistically significant effects on family accommodation or on youth anxiety levels. While results revealed the significant effects of caregiver anxiety on family dysfunction, family dysfunction as measured in this model did not significantly affect family accommodation or youth anxiety levels and was subsequently removed from the exploratory analysis.

These results were somewhat surprising given a number of studies' significant findings of the negative influences of poor family functioning on youth anxiety (Ginsburg et al., 2009, Hughes et al., 2008, von Ort et al., 2010). However, results have been mixed and the lack of significant influence of family dysfunction on youth anxiety in the current study provides support for past studies that have not found evidence of significant influences (see Rapee, 2012 for a review). While family dysfunction is often not included in models of youth anxiety, this study offers much-needed empirical evidence examining the potential role of family environment on the development of youth anxiety.

There are several possible explanations for why this hypothesis was not supported. One finding of non-significance could be due to the subset of measured variables chosen to represent the latent variable. Most of the research looks at family dysfunction (or level of functioning) utilizing a broad approach with various multiple constructs that define dysfunction, ranging from overall total functioning to various combinations of the subtypes of conflict, cohesion, violence, control, and stress levels (Hudson & Rapee, 2005; Mechanic & Hansell, 1989; Rapee, 2012; Silverman, Kurtines, Jaccard, & Pines, 2009). This was the first study to select aspects of family dysfunction that were either implicated as specifically influential on youth anxiety (Campbell & Woodruff-Borden, 2010; Cummings et al., 2000; Last & Strauss, 19990; Leib et al., 2000; Stark et al., 1993; Stark et al., 1990) in past research or were hypothesized to influence family accommodation based on similar parenting practices likely to lead to intervening in a child's everyday life (Bogels & Brechman-Toussaint, 2006; Hudson & Rapee, 1997).

However, parental practices such as over-control, anxious expression, and communication patterns implicated as contributors or potential influences on youth anxiety and family accommodation may not translate similarly to the family level by construct or in their effects. This could be due to how these components are measured on the FAM-III. While the FAM-III was selected as a validated measure of family functioning level, high scores in control, involvement, affective expression, and communication indicate overall poor qualities of these constructs (i.e., overcontrol and undercontrol could both be related to dysfunction). This may not tap into specific aspects of those individual variables that have been suggested as possible determinants of accommodating practices and child anxiety. Inconsistency of constructs is a concern that has occurred in prior studies (Rapee, 2012). As measured, these results instead

highlight that other there may be other parental or family variables that influence family accommodation.

Another possible reason for the lack of a relationship between family dysfunction and family accommodation or youth anxiety could be due to reporter bias. Having only the caregiver report on family dysfunction and not incorporating the youth's view of family dysfunction may explain the lack of significant findings. Caregivers may present a more defensive and restricted score response by the nature of feeling judged in a study on families and youth anxiety (Hampson, Beavers, & Hulgus, 1988; Reis, 1981). Although the FAM-III attempts to correct for Defensiveness and Desirability, a youth's perception and responses on a family dysfunction scale may be more indicative of how dysfunction may influence a youth's own anxiety levels. Utilizing a youth's response on family dysfunction levels in future studies could perhaps detect potential influences that were not evident based on reporter bias. Additionally, the scores for this sample, in general, were consistent with relatively high family functioning, with very few clinically significant dysfunctional scores on the FAM-III. Having a wider distribution of family dysfunction in a broader sample may have helped detect any potential negative effects of family dysfunction on youth anxiety.

Additionally, there is the possibility that influences of family dysfunction were not significant because other factors in this model could have had effects themselves on family dysfunction. For example, there is some support in the literature that youth anxiety alone and in conjunction with a family accommodations of a youth's anxiety could hypothetically have negative impacts on family functioning, or increases in family dysfunction, (Keeton et al., 2013; Hudson et al., 2009; Silverman et al., 2009). Further examination on the directionality of future models that include family dysfunction is warranted. Utilizing hypothetical models that assess

the effects of youth and child anxiety on family dysfunction could further elucidate how family dysfunction best fits into more complex youth anxiety models.

#### **YOUTH COPING AND YOUTH ANXIETY**

This study had a number of exploratory research questions that investigated the effects of adding two latent coping variables into the significant portions of the original hypothesized model of youth anxiety. The latent variable avoidant coping initially included the measured variable composites wishful thinking, avoidant action, and repression based off of its previously demonstrated factor structure (Sandler, 2000). However, repression demonstrated a non-significant factor loading onto the latent variable and was therefore removed to improve the model. Avoidant coping did not have a significant direct effect on youth anxiety levels, although its positive effect approached significance at the .10 level. Despite near significant direct effects, this is inconsistent with previous research indicating consistent use of avoidant strategies is related to higher levels of anxiety in youth (e.g., Garnefski et al., 2001, 2002; Patterson & McCubbin, 1987; Sandler et al., 2000). Active coping, a latent variable composed of composites of control, optimism, positivity, direct problem solving, cognitive decision making, and seeking understanding, also did not find the expected significant, negative association with youth anxiety. This lack of association between active coping and youth anxiety did not support the majority of the literature that has found that increased use of active coping is related to lower youth anxiety (Ebata & Moos, 1991; Roth & Cohen, 1986).

These results, although exploratory and tentative, based on the model's complexity and small sample size, could be due to latent variable measurement. The latent variable avoidant coping was measured using only two factors, despite having found prior evidence of a three-factor structure elsewhere that included repression. However, due to limited sample size or

something particular to this sample, repression did not load well onto this latent variable and was removed. Having fewer factors could have compromised the strength of this latent variable at detecting a significant effect of avoidant coping on youth anxiety, although it did meet Kenny's (2011) criterion of having at least two observed variables as indicators.

The expected influences of both coping variables on anxiety outcomes could also have been found not significant due to difficulties detecting differences in a complex model with an inadequate sample size. While more realistic and meaningful to include and correlate both coping variables together in a complex model, it increased the number of parameters and reduced power to detect potential significant effects of active and avoidant coping on youth anxiety when both variables were included in the model. One alternative option with this small sample size could be to analyze two separate models with only one coping variable in each. However, as this secondary analysis was exploratory, it was left as a combined and complex model to initially simultaneously analyze those relationships.

#### **THE NON-SIGNIFICANCE OF YOUTH SEX ON YOUTH ANXIETY**

While not a main research focus in the present study, it should be noted that youth sex did not have a significant effect on youth anxiety. As gender has been consistently associated with anxiety, with higher rates of anxiety in girls than boys, (Chaplin et al., 2009; Crocetti et al., 2009; Lewinsohn et al., 1998; U.S. Department of Health and Human Services, 1999) the main analysis included Child Sex as a control variable for youth anxiety. This was surprisingly and not consistent with previous research despite near equal distribution between males and females in this sample. As it did not show significance in the main analyses, Child Sex was removed from the exploratory model and analyses. In conjunction with prior research, this indicates that



including youth sex as a control variable in a hypothetical model of youth anxiety may or may not be imperative, but evidence suggests it should be tested for significance in that study sample.

### **GENERAL LIMITATIONS**

Despite many strengths and significant findings, this study also had limitations that should be considered. Some study limitations are related to choices made by the researcher in the creation and analyses of the proposed model. First, it is highly plausible that other common causes were not measured within the current sample and may have influenced the outcomes (Keith, 2006). Major life events or stressors that an individual and/or family are enduring could be an omitted common cause that has been shown to affect caregiver anxiety, family dysfunction, and youth anxiety (Benjamin et al., 1990; Gaylord-Harden et al., 2008; Manassis et al., 1997; Singer et al., 1995). Although it is not known how life stressors might affect family accommodation, one could infer that facing substantial stressor could directly or indirectly influence how often a family has the need to accommodate a child and their ability to intervene. As major life stressors were not measured in the anxiety study and were not a prime focus in this study, they were not included in this model. Future studies could add life stressors as a control variable and also interpret potential influence on family accommodation.

A second potential limitation in model analysis is the hypothesized unidirectional relationships proposed could restrict the full representation of relationships in this model. It is possible that there are bidirectional influences that could exist in a non-recursive model, as some evidence has been found for the effects of youth anxiety on family factors and parent anxiety (Hudson et al., 2009; McLeod et al., 2007; Silverman et al., 2009). It also could be plausible that youth anxiety level could influence what coping strategies a youth employs as well as how often a parent accommodates that anxiety. However, testing recursive models for directionality is

discouraged (Keith, 2006) and the subsequent model and directionality were based weighing the evidence in the literature.

Despite attempts to have a diverse sample, there are some limitations in the sample composition that may restrict the generalizability of the results to other populations. While a strength of the study is the inclusion of both a clinical and community sample for a larger distribution of scores, the combined sample was predominantly white, middle to upper class, mothers with children below the age of 11. The significant results may not be indicative of model fit with other samples and the greater population. Attempts were made to recruit participants at various community events in different areas around the city in order to reflect the city population; however, a portion of potential participants were excluded due to a parent not being able to read and write in English. While this recruitment strategy resulted in a more diverse sample than in the anxiety study participants' alone, together those who agreed to participate and met criteria were less diverse demographically.

There were also significant mean differences (see Table 5 and Table 6) between the clinical and community subgroups of the overall sample on some of the measured variables. This could have affected the data and outcome in terms of skew or limiting the generalizability of the results. While attempting to represent a range of scores, future studies could include both clinical and community sample comparisons as well as include a larger sample size in attempts to have a more normally distributed sample that is desired for an SEM analysis. Otherwise, a multi-group SEM analysis would be helpful to compare subgroup differences.

The last three exploratory research questions utilized a complex SEM model to determine the relationships of family factors, active and avoidant coping, and youth anxiety. As only a portion of the total number of subjects had completed the coping measure used for these latent variables, the sample size for that model was only 97 participants. The small sample size limited

the power behind this analysis, and makes it more difficult to determine whether the results are an accurate finding within the sample population, or, rather, a result of having insufficient power to detect meaningful differences. Therefore, the limited sample size indicates that the complex model results for the current study must be interpreted with caution and serve as an impetus for future research.

These limitations raise questions about the accuracy of the results of the current study. The significant and non-significant results may reflect accurate models' depiction of how caregiver anxiety, family dysfunction, family accommodation affect youth coping and youth anxiety levels; however, the restriction of available data and sample size may also have affected the analyses' ability to discover accurate significant results.

## **IMPLICATIONS AND RECOMMENDATIONS**

### **Theoretical implications**

Despite limitations, the current study adds to the theoretical underpinnings of the development and maintenance of youth anxiety. Several theories have focused on the role of family influences, such as caregiver anxiety, parenting style, family functioning, (Chapman & Woodruff-Borden, 2009; Hudson & Rapee, 1997; McClure et al., 2001; Short & Spence, 2006; Simpson, 2011; Stark et al., 1990; van Ort et al., 2010) and more recently, family accommodation (Jones, 2013; Jones et al., 2015; Lebowitz et al., 2015) in factors that influence youth anxiety. No theoretical models have simultaneously investigated the effects of caregiver anxiety, family dysfunction, and family accommodation on youth anxiety levels. The current study's findings suggest that caregiver anxiety and family accommodation both contribute to the development and maintenance of anxiety. In particular, the findings highlight the central role of family accommodation in relation to youth anxiety levels. Although previous research has found

a few direct links between caregiver and youth anxiety (see McClure et al., 2001 for a review), these results suggest that caregiver anxiety is not actually directly related to youth anxiety levels, but instead influences the development of elevated anxiety via contributing to parents increased frequency of accommodation behaviors.

The findings from the current study provide additional support for a developmental psychopathology theory of youth anxiety (Cicchetti & Cohen, 1995; Masten & Braswell, 1991; Spence, 2001; Vasey & Dadds, 2001) by indicating that both caregiver anxiety and family accommodation influence youth anxiety and, thus, are genetic and environmental factors that should be considered within models of youth anxiety. These results, which align with prior research, indicate caregiver anxiety and family accommodation influence myriad factors that could contribute to youth anxiety. In particular, the combination of caregiver anxiety and frequent family accommodation appear to lead to higher levels of youth anxiety and could be viewed as potential risk factors for elevated youth anxiety.

### **Clinical implications**

The current study offers insightful information to consider for future clinical treatment for anxious youth. Findings reinforce prior evidence for the important role of family influences on elevated youth anxiety. In particular, these results highlight the important roles of caregiver anxiety and family accommodation in the occurrence of youth anxiety. This study not only shows that while caregiver anxiety increases the likelihood of elevated youth anxiety, it elucidates that the influence of caregiver anxiety on youth anxiety appears indirectly through the behavioral aspects of family accommodation. Frequent family accommodation of anxiety also appears to influence the use of more avoidant coping strategies, which has been linked to higher anxiety levels in previous studies. Therefore, family accommodation, particularly in conjunction

with caregiver anxiety, appears to be the critical variable to focus on in prevention and intervention programs.

Results suggest the inclusion of a caregiver component that focuses on caregiver education on family accommodation and accommodation reduction strategies, as targeted in the SCOPE (Lebowitz & Omer, 2013) and Timid to Tiger (Cartwright-Hatton, 2010) intervention programs. Treatment should also provide caregiver skills on recognizing and modulating their own anxiety, as reducing accommodation practices may increase parents' own anxiety, particularly if youth respond with negative externalizing behaviors (Lebowitz et al., 2013). Aspects of behavioral management may also be necessary to help an anxious caregiver feel better equipped to effectively deal with negative youth reactions during treatment. Modifications of Parent Child Interaction Therapy (PCIT) for anxious youth have had some success in treatment outcomes (Puliafico, Comer, & Pincus, 2012). In turn, anxious youth should have continued building of coping with reductions in accommodation and facing anxiety-provoking situations. Focusing on building a repertoire of effective coping strategies continues to be imperative, as emphasized in the Coping Cat (Flannery-Schroeder & Kendal, 1996). As families accommodate anxious youth less, teaching and employing more active coping and fewer avoidant coping strategies to the families and youth appears critical in reducing youth anxiety in the long-term.

As caregiver anxiety demonstrated multiple significant direct and/or indirect negative influences on family dysfunction, family accommodation, and youth anxiety, treatment for youth anxiety may necessitate separate individual treatment for a highly anxious caregiver. If a caregiver's elevated anxiety impairs their ability to successfully engage in a caregiver component of treatment for their child, these results indicate individually targeting caregiver's own anxious

symptoms that are directly and indirectly impacting their family system and child may need to occur. However, there is evidence that improvements in youth anxiety through treatment may also consequently reduce caregiver anxiety as a youth improves (Keeton et al., 2013; Silverman et al., 2009) which could also help prevent the recurrence of youth anxiety in the future.

### **Future Research**

Due to the significant influence of family accommodation on avoidant coping and youth anxiety, further study is warranted to clarify the underlying aspects of accommodating practices that lead to increased utilization of avoidant coping strategies and put youth at risk for increased anxiety. In particular, parsing out which particular accommodating behaviors, such as removing a child from an anxious situation and providing reassurance, are significantly associated with increased use of ineffective coping skills and elevated youth anxiety would specify which behaviors to target and reduce in treatment.

Conducting similar research to the exploratory model with a larger and more demographically diverse sample could provide opportunities to investigate whether the connections between caregiver anxiety (utilizing data from more than one caregiver per youth participant), family accommodation, coping style, and youth anxiety are replicated. In particular, it would be beneficial to conduct multi-group analyses to see whether these associations differ by SES, ethnicity, parent and child sex, and youth age. These areas have been unexplored and could inform the expanding area of family accommodating practices and developing effective intervention programs. Of particular interest would be whether frequency of accommodation and its strong connection to youth anxiety exists similarly for younger and older youth. Adolescence' increasing developmental need for autonomy (Blos, 1979) could potentially limit or change the amount and influence of family's accommodating practices. As the frequency and

impact of family accommodation may vary by developmental stage, it may be considerably important to adapt clinical interventions targeting accommodation based on youth age range.

Assessment of the influences of family accommodation on youth coping styles should be continued from the preliminary suggested findings in this exploratory portion. Utilizing a much larger sample could provide a more powerful assessment of these indicated relationships that demonstrated specific contributions to the development and maintenance of youth anxiety. Having a larger sample also could provide the possibility of including other control variables, such as life stressors.

Finally, conducting a longitudinal examination of a model could help clarify some of the complex issues described previously as limitations. In particular, comparing family variables and youth anxiety levels at multiple data points could help provide information on the most accurate directionality of a model of youth anxiety. By taking a longitudinal approach, effects across time could better capture the bi-or uni-directionality of the variables, particularly noting the suspected bi-directional influences of youth anxiety on family variables. Additionally, a longitudinal study would allow for assessment of the effects of accommodation over time and whether there are differences at various developmental levels.

## **CONCLUSION**

The primary purpose of the current study was to gain a more comprehensive understanding of how caregiver anxiety, family dysfunction, and family accommodation influence each other and youth anxiety levels. A secondary goal of this study was to initiate a preliminary analysis of a more complex model that explores the relationships between family factors, youth coping style, and youth anxiety with the addition of active and avoidant variables into the first model.

The findings suggest that preventative interventions and/or current treatments of youth anxiety may benefit from including components that address parent/child and/or family issues that may be contributing to the mechanisms that interfere with a youth's ability to learn to cope effectively, and in turn, negatively influence anxiety levels. It is important for research to continue to identify key factors, such as individual aspects of family functioning or particular messages or behaviors that families say or do to accommodate a youth's anxiety, which predict and explain the development of poor coping skills and contribute to the development and maintenance of anxiety. Future research should continue to examine the influences of family factors on youth coping and youth anxiety while incorporating additional possible common causes. Clinicians and researchers should continue to capitalize on the important roles of family's influences in youth anxiety prevention and intervention programs. Specifically targeting ways to incorporate families in treatment and reducing accommodation and avoidant coping, particularly in families with anxious parents, is needed.

It is hoped that the current study has added to the growing body of literature on the influences of caregiver anxiety, family dysfunction, and family accommodation on youth anxiety. Another major aim of this study was to encourage further research in aforementioned areas, with a particular focus on integrating individual mechanisms, such as coping style, into this continued research. Given the prevalence of youth anxiety and its negative long-term effects, it is important to continue to explore pathways to youth anxiety disorders in order to better prevent and treat anxiety symptoms among children and adolescents.



## APPENDICES

### APPENDIX A

#### DSM-5 DIAGNOSTIC CRITERIA FOR ANXIETY DISORDERS

##### *DSM-V Anxiety Disorders*

Panic Attack	Intense feelings of fear that strike suddenly and repeatedly with no warning, often accompanied by somatic symptoms including sweating, chest pain, heart palpitations, etc.
Agoraphobia	Anxiety related to avoidance of, places or situations from which escape may be difficult
Panic Disorder Without Agoraphobia	Recurrent unexpected Panic Attacks about which there is persistent concern
Agoraphobia Without History of Agoraphobia	Presence of Agoraphobia and panic-like systems without a history of Panic Attacks
Specific Phobia	Intense fear of a specific situation or object
Social Phobia	Worry and self-conscious fear about social situations and negative evaluation by others
Obsessive-Compulsive Disorder	Constant thoughts (obsessions) or fears that cause them to perform certain rituals or routines (compulsions).
Posttraumatic Stress Disorder	Long-term lasting and frightening thoughts and memories of the a traumatic event such as a war experience, car accident, or sexual/physical assault often accompanied by vivid dreams and a heightened sense of their surroundings (hypervigilance)
Acute Stress Disorder	Increased anxiety and arousal due to a traumatic event
Generalized Anxiety Disorder	Excessive worry evidenced for at least six months
Anxiety Due to General Medical Condition	Anxiety symptoms due to a medical condition
Substance-Induced Anxiety Disorder	Anxiety symptoms that are determined to be a direct physiological consequence of a drug of abuse, a medication, or toxin exposure
Anxiety Disorder Not-Otherwise Specified	Symptoms of anxiety or phobic avoidance that do not meet diagnostic criteria for any specific Anxiety Disorder
Separation Anxiety Disorder*	Intense anxiety due to separation from a parent
Sexual Aversion Disorder	Phobic avoidance that is limited to genital sexual contact with a sexual partner

\*May only be diagnosed in children and adolescents

## **APPENDIX B**

### **STRESS AND ANXIETY: CONCEPTUAL HISTORY OVERVIEW**

Before the middle of the twentieth century, the terms “stress” and “anxiety” were often used interchangeably in biological and psychological communities. Freud was one of the first psychologists to explore the concepts of stress and anxiety. In Freud’s psychoanalytic model, conflict-induced anxiety (or “tension”) produced specific defense mechanisms, or ineffective coping mechanisms that elicited a particular symptomology (Freud, 1917). The term “anxiety” itself did not appear in Psychological Abstract Journal until 1944 (Lazarus & Folkman, 1984). May (1950, 1958) popularized Kirkegaard’s work on anxiety and stressors in the US, adding additional weight to a growing field and interest from psychological researchers. As measurements of anxiety underwent development and testing, psychological research on anxiety and stress focused on the effects on performance (Spence & Spence, 1966; Taylor, 1953). However, the terms “anxiety” and “stress” continued to not be fully defined and distinguished.

Meanwhile, biologists started to focus on the ways environmental changes affected physiological patterns. Selye (1956) brought attention to this connection with his research on the patterned physiological changes in laboratory animals produced by exposure to noxious stressors. However, it was Janis’ (1958) pivotal use of the term “stress” in his publication on surgical threat that fostered the movement of developing stress theory and methodology.

The work by Holmes and Rahe (1967) on human stress helped formulate definitions of stress and distinguish stress-related terminology. After examining over 5,000 medical patients’ records to assess whether stressful experiences led to illness, Holmes and Rahe developed a checklist of major life events and calculated readjustments weights for their impact on an

individual's health. In this work, they defined "stress" as an internal, social, or environmental pressure that necessitates an individual to change his or her typical behaviors (Holmes & Rahe, 1967).

Increasingly, research began exploring the connection between adverse circumstances and physical and mental health, often taking root in one of two conceptualizations: stress as a stimulus, or a response. Stress conceived as a response was used predominantly in medical and biological research, where stress was a physical and emotional state of being. Stress as a stimulus was viewed as negative events that imposed on an individual. Lazarus and Ohen (1977) proposed three types: major changes affecting many people, changes affecting only one or two individuals, and daily hassles. They identified chronic and acute demands, size and type of adjustment needed, extent of control over the event, and emotional valence of the event as dimensions that can influence how stressful an event is (Lazarus and Ohen, 1977). In a report by the Institute of Medicine on Stress and Human Health, the Panel of Psychosocial Assets and Modifiers of Stress suggested a stress taxonomy (Elliott & Eisdorfer, 1982). This taxonomy differentiated stress as acute, time-limited stressors, stressor sequences, chronic intermittent stressors, and chronic stressors.

Lazarus and Folkman (1984) cautioned against focusing on taxonomy creation and this binary view of stress. Instead, they adopted a broader definition, positing that stress is more of an overarching concept that provides a lens into an expansive range of events that promotes animal and human adaptation. Lazarus and Folkman emphasized the consideration of the individual and the context of the situation, adding a relational perspective. They suggested an individual's patterns of responses and the meaning they attribute to circumstances also affect whether a stimulus is interpreted as stressful and react accordingly.

Since Lazarus and Folkman (1984) proposed this integrative view, “stress reaction” has now been distinguished from “stress” as a “state of physiological or emotional arousal that usually, but not inevitably, results from the perception of stress or demand” (Thoits, 1995, p. 54). Anxiety is similarly defined as an emotional, cognitive and physical state, but in response to a fear reaction. Anxiety is distinguished from stress, however, because this response can occur without an actual threat. Anxiety, characterized by thoughts of worry about actual or perceived threat and/or physical responses, is further delineated from stress by the intense fear and concern about real or perceived threat (DHHS, 1999; Rapee, 2001).

## APPENDIX C

### INDIVIDUAL AND ENVIRONMENTAL FACTORS ASSOCIATED WITH YOUTH ANXIETY

*Life events.* Clinically anxious youth tend to have higher rates of negative life events (Benjamin, Costello, & Warren, 1990; Kashani & Orvaschel, 1988). Parental separation or divorce, family conflict, repeated school changes, medical illnesses, and death of a family member, and natural disasters (Benjamin, Costello, & Warren, 1990; Kashani & Orvaschel, 1988; LaGreca, Silverman, Vernberg, & Prinstein, 1996). Exposure to high levels of community violence is a risk factor for developing an anxiety disorder (Martinez & Richters, 1993; Singer, Anglin, Song & Lunghofen, 1995). Goodyer, Wright, and Altman (1990) found that many anxious children have not experienced more stressful occurrences, and many youth who do experience aversive life events do not have subsequent psychopathology. Instead, the effects of stressful life events are ameliorated or exaggerated by other factors that promote resilience, such as family social support and problem-focused coping strategies (Compas, 1987; White, Bruce, Farrell, Klierwer, 1998).

*Temperament.* Temperament is another factor that has been attributed to the etiology of anxiety disorders. Temperamental theorists suggest that anxiety develops when a child possesses an inherited physiological predisposition to inhibited behavior (Garcia-Coll, Kagan, & Reznick, 1984), with evidence of the stability of this trait over time (Kagan, & Reznick, 1984, 1984; Kagan, et al., 1990). Behavioral inhibition, defined as “an initial tendency to withdraw, to seek a parent, and to inhibit play and vocalization following encounters with unfamiliar people and events” (Kagan et al., 1990, p. 72), is identified as those who avoid novelty and exploration (Kagan, Reznick, & Gibbons, 1989).

Behaviorally inhibited youth also have chronically high sympathetic arousal; Rapid acceleration in heart rates when faced with cognitive stress is another tendency for youth with

behavioral inhibition (Kagan et al., 1987; Kagan et al., 1988). Hyperarousal and avoidant behavior have been associated with multiple youth anxiety disorders (Biederman et al., 1990). Surprisingly, low parasympathetic arousal may also be associated with the development of behavioral inhibition and subsequent anxiety (Fox & Stifter, 1989). Infants with low vagal tone, an indicator of parasympathetic arousal, were found to be less outgoing and interactive than those with high vagal tone (Fox & Stifter, 1989).

A number of explanations for the onset and maintenance of behavioral inhibition have been suggested. Evidence for a genetic predisposition for behavioral inhibition comes from higher rates of concordant behavioral inhibition among identical twins than among fraternal twins (Plomin & Rower, 1979). Kagan proposed this behavioral tendency was due to a lower threshold of response to unfamiliarity and change in the limbic system (Kagan et al., 1988; Kagan et al., 1990), suggesting that this lower threshold may be inherited or that it may be due to chronic environmental stress (Kagan et al., 1988). Others have suggested that parental tolerance levels of their child's avoidant behavior may influence changes in behavioral inhibition. Infants with higher heart rates and higher cry rates, physiological indicators related to behavioral inhibition, tend to be come inhibited if their mothers set few limits and are very responsive to their needs (Arcus, 1991). Manassis and Bradley (1994) suggested such mothers were more tolerant of avoidant and needy behaviors, were more overprotective, and allowed avoidant behaviors to continue.

Evidence highlights many difficulties linking behavioral inhibition with the manifestation of an anxiety disorder. A fourth of inhibited children do not remain inhibited (Kagan et al., 1988), and of those who do, many individuals do not develop anxiety disorders (Reznick et al., 1986). When inhibited children do develop anxiety disorders, presentations and manifestations

vary across individuals (Biederman et al., 1990). Comorbidity with other disorders is also difficult to explain using only temperamental vulnerability, and inhibition may also be linked to depression or having a depressed caregiver (Biederman et al., 1990; Kochanska, 1991; Steinhauer & Berman, 1983).

Other temperamental factors may also be associated with youth anxiety disorders (Fox & Stifter, 1989; Silverman, 1989). However, children's reactions to situations and negative parental responses to them may foster continued behavior patterns, such as lowering confidence to explore, which increases a youth's vulnerability for developing an anxiety disorder (Manassis & Bradley, 1994). For example, Jacobson and Frye (1991) found that children who sought comfort from their mothers when they met a stranger were perceived as shy and given encouragement, but those children who were paralyzed by fear and did not seek solace were viewed as impolite for not responding and were punished or criticized.

*Developmental differences.* Developmental differences may also influence the onset, presentation, and type of anxiety disorder a youth develops. Shifts in fears that occur normally during development are important to consider and may influence the onset and type of a disorder. Younger children tend to have more concrete fears, such as loud noises, separation, injury, and strangers (Schniering, Hudson, & Rapee, 2000; Spence, Rapee, McDonald, & Ingram, 2001). Adolescents, on the other hand, express concerns that are often more abstract and about social evaluation. Differences in fears during development explain the predominance of SAD in childhood (Last et al., 1987;), and higher rates of GAD, panic, and social phobia in adolescents and adulthood (King, Ollendick, & Mattis, 1994; Last et al., 1987; Verhulst, van der Ende, Ferdinand, & Kasius, 1997; Strauss et al., 1988).

The varying amount and intensity of fears across development may also influence the onset and type of youth anxiety disorder. Compared to adolescents, younger children tend to express a greater number of fears that are also more intense than adolescents (Ollendick, King, & Frary, 1989; Spence & McCathie, 1993). Although the number of fears expressed and their intensity tends to decrease as one ages, as do externalizing problems, there is an increase in internalizing problems with age (Crignen, Achenbach, & Verhurlst, 1997). Fear content, number, and intensity changes may explain development differences in presentation. For example, in earlier childhood, children often have fluid, comorbid anxiety disorders (such as GAD and SAD), whereas adolescents and adults tend to have a more distinct, persistent disorder(s) presentation (Bernstein et al., 1996).

Cognitive development level may explain some of the differences across age (Vasey, 1993). A certain level of cognitive development may be necessary for the perception of threat and reappraisal needed for the onset of an anxiety disorder in a child. Higher levels of cognitive development were associated with fear and worry in a non-clinical sample of children assessed by a Piagetian conservation task (Muris, Merckelback, & Luijten, 2002). The achievement of certain cognitive abilities also may be necessary for specific disorders to manifest. For example, concerns of self-consciousness and evaluation central to social anxiety disorder may emerge as young as two years old (Lewis, Stanger, Sullivan, & Barone, 1991; Rapee & Heimberg, 1997). However, differences in how embarrassment is experienced have been found. In one study by Bennett and Gillingham (1991) five-year-olds only experienced embarrassment in front of a disapproving audience, while eight-year-olds reported feelings of embarrassment in front of both disapproving and supportive audiences. Additionally, the ability to think more abstractly in adolescence may explain why there is an increase in panic disorder in adolescence (King,



Ollendick, & Mattis, 1994). Older adolescents are more able to project catastrophic outcomes from physical symptoms than younger children (Nelles & Barlow, 1988). These findings suggest that while a certain cognitive ability may still be developing in younger children, it is not until a more advanced ability has been achieved until the disorder becomes fully expressed, as evidenced by an increase in social anxiety disorder as children age (Last et al., 1996).

*Race, culture, and religion.* Background factors such as ethnicity and culture may also contribute to youth anxiety disorders. Racial background and culture may influence what stressors an individual experiences, how they are perceived, coping responses accepted, and the extent to which mental health services are available and sought out (Brown, Sellers, Brown, & Jackson, 1999; McCarty, Weisz, Wanitromanee, Eastman, Suwanlert, Chaiyasit, & Brotman-Band, 1999). Studies have found differences in the content and severity of fearfulness between African American and Caucasian children (Last & Perrin, 1993; Neal, Lilly, & Zakis, 1993). Racial minorities may face increased stress related to discrimination and acculturation, thus partially explaining different fear content and levels in some groups (Gaylord-Harden & Cunningham, 2009; Landrine & Klonoff, 1996; Pearlin, 1999).

Studies that have assessed prevalence rates across races for specific anxiety disorders have been limited and have mixed results. Similar prevalence rates of SAD across ethnicities have been found (Ginsberg & Silverman, 1996; Last, Perrin, 1993). 86% of children with SoP referred to a specialty clinic were Caucasian (Strauss & Last, 1993), while 55% of a sample referred from a school for test anxiety were Caucasian, and 45% were African-American (Beidel, Turner, & Trager, 1994). However, the overall rates do not indicate differences racial differences, suggesting that while fears may be about different things and at differing levels, it does not necessarily increase a youth's risk for developing clinical levels of anxiety. Many

studies have solely focused on clinical samples that are primarily white, and many studies that have assessed with more diverse samples may fail to detect significant differences because of smaller samples sizes.

Limited evidence for cultural differences also exists, as minimal studies have evaluated this potential influence. Using the Fear Survey Schedule for Children-Revised (Ollendick, 1983), differences across cultures in different countries was found. Youth from China, Kenya, and Nigeria reported a higher number of fears than children from the Western cultures of the United States, Australia, and Great Britain. The researchers suggested that the higher rates of fearfulness may be related to an increased stress of inhibition and compliance in African and Asian cultures (Ollendick, Yang, King, Dong, & Akande, 1996). Limited evidence exists that religion may also influence fearfulness. In a sample of African children, children raised in a Christian household endorsed more fears than Muslim children (Ingman, Ollendick, & Akande, 1999). Additional research across cultures and with racially diverse samples has been recommend to address the paucity in the literature (Agbayani-Siewert et al., 1999; Manassis et al., 2004).

## **APPENDIX D**

### **PARENTAL STYLES AND BEHAVIORS ASSOCIATED WITH YOUTH ANXIETY**

High degrees of parental control have been positively associated with youth anxiety disorders (Dumas, LaFrenier, & Serketich, 1995; Hudson & Rapee, 2002; Siqueland et al., 1996). Parental overcontrol, defined as excessive involvement and regulation of a child's routines, thoughts, and feelings by a parent, threatens a child's sense of autonomy and ability to regulate their own emotions. (Barber, 1996; Steinber, Elmer, & Mounts, 1989; Schwarz, Barton-Henry, & Pruzinsky, 1985). Perceptions of a lack of mastery creates heightened anxiety due to a cognitive bias that a child cannot control external events or have the ability to moderate their reactions, leading to the development of anxiety symptoms (Chorpita & Barlow, 1998; Gruener et al., 1999; Siqueland et al., 1996).

A number of self-report and behavioral observations have found a consistent relationship between parental overcontrol and youth anxiety. Using self-report measures of anxiety symptoms and parental behaviors, Gruener and colleagues (1999) found that in a sample of 9-12 year olds, parental control and parental worry were related to youth anxiety disorders. Siqueland and colleagues (1996) assessed anxiety level using clinical interviews and parental behaviors through observations of child-parent interactions. Higher degrees of control were also found in families with anxious youth (Siqueland, et al., 1996). Hudson and Rapee (2001) found that anxious children had mothers who were more involved and intrusive in ambiguous situations in a laboratory setting than were non-anxious mothers. Additional observational studies have replicated these findings (Mills & Rubin, 1998; Dumas et al. 1995). Wood and colleagues (2003) detected a medium to large effect in observational studies.

The level of parental protection has also been examined in the development of youth anxiety. Overprotection, defined as excessive parental control of the environment in attempts to

minimize stressful experiences for the youth (Parker, 1983), can consist of restrictive or protective behaviors without warranted cause. Parental overprotection has been found to be associated with youth anxiety with samples ages 7-17 (Last & Strauss, 1990; Leib et al., 2000). In a sample of adolescents, those with social phobia also endorsed more having more overprotective parents than adolescents without social phobia.

Parental acceptance, or general warmth and responsiveness by a parent and emotional and behavioral involvement, is a defining element in the quality of attachment and has also been associated with youth anxiety levels (Maccoby, 1992; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Acceptance of children's range of affective expression, as opposed to criticizing or dismissing feelings, is thought to foster child's ability to regulate their emotions as they learn through trial and error to tolerate anxiety and other negative emotions (Gottman, Katz, & Hooven, 1997). On the other side, parental rejection and criticism have been linked with higher levels of youth anxiety.

In a sample of matched clinically anxious and non-anxious children, Siqueland and colleagues (1996) found that children's reports of maternal acceptance had a large effect, accounting for 21% of the variance in diagnostic status. Rapee (1997) and Whaley and colleagues (1999) also found higher levels of parental rejection in anxious youth. The effects of rejection may depend on who is the rejecting parental figure. In a study done in Croatia with ten to sixteen year olds, Vulic-Prtoric and Macuka (2006) found that perceived father rejection was predictive of youth anxiety, although the perception of both mother and father rejection was predictive of depression.

However, in a meta-analysis by Wood and colleagues (2003), only three of ten studies with child-rated maternal acceptance had statistically significant effects, and very few studies

that used parent ratings of acceptance had significant results. However, observational studies of acceptance and youth anxiety levels have produced evidence for the relationship between acceptance and anxiety levels, with all five studies assessed in the analysis by Wood and colleagues (2003) demonstrating significance. Wood and colleagues (2003) also suggested that a third variable, maternal anxiety, could be an important third variable explaining the correlation between acceptance and youth anxiety.

In another meta-analysis, Rapee (1997) conversely suggested that there is consistent evidence for the parental rejection/acceptance and youth anxiety, citing parenting style (both warmth and control) accounts for between 4%-9% of the variance with anxiety. However, Rapee (1997) cited the difficulty assessing across different theoretical basis and methods, critiquing the use of retrospective data and lack of observational methods. Although Rapee (1997) posited that studies had a statistical effect, he also indicated that there is more evidence positively relating rejecting to depression and control was more specific to anxiety.

Parker (1983) implicated the combined categories of parental warmth and protection, deemed care and protection, respectively, as pivotal in the development of youth anxiety. Parker's (1983) model of parental behaviors and anxiety suggests that a specific formula of the parental acceptance/warmth/responsiveness and protection contribute to anxiety disorders. Parker (1983) posited that the combination of high protection (overprotection) and low care along these two dimensions, deemed "affectionless control," were most likely to contribute to a youth to feel a lack of control or confidence in manipulating the environment and also do not have the support available to assist them, resulting in anxiety (Chorpita & Barlow, 1998, p. 12). Parker (1979) found evidence of consistently high rates of overprotection and low rates of reported care in anxious patients, as reported by fifty clinical patients when compared to

controls. Dumas, LeFrenier, and Serketich (1995) and Silove and colleagues (1991) also found a similar pattern of high control and low responsiveness in mother-child dyads where the child exhibited elevated anxiety.

## APPENDIX E

### INDIVIDUAL AND ENVIRONMENTAL FACTORS ASSOCIATED WITH YOUTH COPING

*Developmental level.* Developmental factors have multiple influences on the stressors children and adolescents face and their resources to effectively cope. Children and pre-teens must deal with the stressors of learning to go to school, rapid mental and physical growth, developing relationships outside of the home, amongst others. Adolescents must meet the demands of this period of life when sexual needs and identity formation surface (Lerner & Spanier, 1980). It is a time when they are in between child development and facing adulthood (Poole, 1983). Corresponding bodily and hormonal changes can influence self-image and can cause anxiety, as can planning for the future. Furthermore, children and adolescents have different sets of cognitive abilities. While young children through pre-teens progress through stages of concrete and less flexible cognitive abilities, adolescents acquire more cognitive flexibility and can use abstract thinking (Piaget, 1967). The adolescent has a broader range of cognitive abilities than a younger child and can draw from both concrete and abstract and utilize cognitive strategies. Adolescents have also had more experience in observing, attempting, and developing their use and experimentation with strategies, which can continue to influence adult coping styles (Valiant, 1977).

Based on developmental differences, children and teens at different ages tend differ in the types and breadth of coping strategies they employ. Young children generally tend to attempt to soothe through behavioral means, such as seeking support, withdrawing, or seeking comfort from an object (Gunnar, 1995). During middle childhood, children are able to employ the more complex strategies of emotion regulation and problem solving as they develop more advanced language and cognitive abilities. Strategies such as self-talk, cognitive reframing, and generating alternative solutions are typical of child in middle childhood (Moss, Gosselin, Parent, Rousseau,

& Dumont, 1997; Normandeau & Gobeil, 1998). With the onset of more facile metacognitive skills and reasoning, adolescents are more equipped to better select a coping strategy that matches the situation at hand. Adolescents also have a broader range of coping strategies they employ, and tend to be more successful using both behavioral and emotion-focused strategies than younger children (Compas, 2001).

*Life stressors.* The number and types of stressors youth face can also affect the coping strategies they endorse. Various studies have assessed coping strategies used across different types of stressors, such as parental conflict, financial strain, medical procedures, and sexual abuse, as well as general life events. There is evidence that the more negative life events one experiences, the greater number of strategies youth employ, which was also found to be correlated to higher levels of anxiety (Manassis et al., 1997). Strategies employed and their effectiveness also appears dependent on the controllability of the situation (Forsythe & Compas, 1987; Osowiecki & Compas, 1998, 1990). With more uncontrollable stressors in a youth's life, the more avoidant and passive their strategies become (Chaffin et al., 1997; O'Brien et al., 1995, 1997; Weisenberg et al., 1993).

*Race and culture.* Race and cultural background may also influence an individual's coping style and types of stressors. Certain minorities may face increased pressures dealing with discrimination, immigration status, and acculturation (Pearlin, 1999). Discrimination particularly has a strong negative impact on stress levels (Gaylord-Harden & Cunningham, 2009). However, very few studies have included a large enough sample of diverse youth in order to detect significant findings. Studies have mostly used samples that are predominantly middle-to-upper class Caucasian youth. The few studies that have assessed minority populations specifically (Gaylord-Harden & Cunningham, 2009; Gaylord-Harden et al., 2008; Landis et al., 2007; Tolan



et al., 2002) have suggested differences in the use of distraction and reduced effectiveness in reducing anxiety for Africa-American youth when compared to Caucasian samples. In a recent study, ethnicity only moderated the effect for one risk factor and one coping strategy (Simpson, 2011). Context may also be a more salient factor than race, as many of the studies focused on inner-city African American youth. Examining differences in a diverse sample with ample sample size could illuminate potential differences in how racial minority youth experiences different stressors that may impact their coping strategies used and their effectiveness.

*Anxiety predisposition.* Being genetically predisposed to anxiety or already possessing a clinical level of anxiety can also affect the type and number of coping strategies youth utilize. Highly physiologically reactive individuals tend to have an inhibited temperament, while those with low reactivity tend to be less inhibited (Biederman, 1981). Behavioral inhibition is related to a lower threshold for stress and increased vigilance for detecting threat and autonomic arousal, and has been related to avoidance and withdrawal as coping mechanisms (Kagan, 1989; Kagan & Snidman, 1991). Meanwhile, less inhibited individuals are found to use more active, approach coping strategies (Compas, 1991).

Anxious or inhibited youth have been found to use more cognitive coping strategies and fewer active behavioral strategies. In a study with both non-clinical and clinically anxious youth from an outpatient treatment center, Legerstee, Garnefski, Verhulst, and Utens (2011) found that anxious youth used more cognitive coping strategies, both maladaptive and adaptive, than non-anxious youth; however, Legerstee et al. (2011) also found anxious youth also endorsed using significantly more maladaptive strategies of rumination, self-blame, and catastrophizing. This finding also corresponds to other evidence of anxious youth using more variety in the types of coping strategies used, but with more reliance on more maladaptive, anxiety-evading strategies

such as avoidance and to some extent, distraction (Barrett, Rapee et al, 1996; Ebata & Moos, 1991; Wadsworth & Berger, 2006).

The extent to which youth acknowledge their anxiety levels is also related to the coping strategies they report using. In a sample of 7-12 year-old youth who had been diagnosed with an anxiety disorder by both clinical interview and parent reports, Manassis, Mendlowitz, and Menna (1997) found differences between those youth who also endorsed clinical levels of anxiety with those who did not. Youth who did endorse their anxiety used a larger repertoire of strategies, but were more reliant upon avoidant strategies than non-endorsing clinically anxious youth. The non-endorsers tended to focus on using distraction as a main strategy. Manassis et al. (1997) suggest that differences in acknowledgement of anxiety in clinical youth may inform treatment by focusing on helping youth who endorse anxiety use fewer but more effective strategies, while anxiety non-endorsers could benefit from expanding their use of adaptive strategies.

## **APPENDIX F**

### **PARENTAL COVER LETTER AND CONSENT**

#### **IRB USE ONLY**

Study Number: 2014-06-0017

Approval Date: 07/22/2015

Expires: 07/21/2016

#### **COVER LETTER**

Hello,

On behalf of the University of Texas at Austin and the Anxiety Disorder Study conducted at the Texas Child Study Center, an outpatient clinic associated with Seton Hospitals, I am inviting you to participate in a potentially important research study. My name is Kati Morrison and I am a doctoral student in School Psychology (Educational Psychology) at the University of Texas at Austin. The purpose of this study is to investigate the potential influences of family characteristics on youth anxiety. This study is part of my doctoral dissertation and will potentially lead to a better understanding of the development and persistence of youth anxiety and may inform ways to improve treatment of youth anxiety. Specifically, I will be looking at parental anxiety, family functioning, the ways families accommodate anxious situations for their child, and the level of anxiety a youth experiences.

In order to gather this information from you and your child, your child will be asked to complete four questionnaires. A trained doctoral student will provide verbal and/or written instructions to your child and it should take 15-45 minutes for your child to complete the questionnaires. One of the child's caretakers will be asked to fill out three questionnaires and one brief demographic form. It should take you around 15-30 minutes to complete the respective questionnaires. Upon completion, your child will receive a \$10 gift card to either iTunes or Target.

If from the screening questionnaires your child appears to show symptoms of a possible anxiety disorder, you will be contacted, with your consent, and offered the opportunity to come to the Texas Child Study Center for an intake interview and potential inclusion in an ongoing anxiety treatment program that is being supervised by Kevin Stark, Ph.D. The study is investigating a manualized treatment for youth with anxiety disorders and the purpose is to evaluate the impact of an additional parent component in the cognitive-behavioral treatment program. In addition to measuring improvement in a child's emotional functioning, the study aims to evaluate the effects of treatment on parental satisfaction, the quality and characteristics of the parent-child relationship, and any reduction in parent anxiety symptoms. Screening and participation in the study will not cost you anything. Should your child qualify for participation in the study, additional information about the study will be provided to you.

Please read the following carefully and thank you in advance for your consideration in participating in this study.

Sincerely,

Kati Morrison, M.A.  
Doctoral Candidate  
The University of Texas at Austin  
School Psychology  
Educational Psychology  
Telephone: (510) 290-5588

## PARENTAL CONSENT

### Parent/Guardian Informed Consent Agreement

Please read this consent agreement carefully before you decide to allow your child to participate in this study. Your child will also receive an assent form; please review the assent form with your child.

**Purpose of the research study:** The purpose of this study is to examine the relationships between family factors and youth anxiety.

**What you and your child will be asked to do:** If you and your child consent to participate in this investigation, you both will be asked to complete a packet of questionnaires. Your child will be asked to complete four questionnaires that should take between thirty to fifty minutes to complete. You, as the parent/guardian, will be asked to complete four questionnaires that should take between 30-40 minutes to complete. There will be more than 120 other parents participating.

**Benefits:** While participants will receive no direct benefits from participating in this study, they may benefit indirectly from

- Increased insight into their own and/or their child's emotional functioning.
- Assisting in advancing research about child and adolescent anxiety disorders.
- Having the opportunity for additional testing and inclusion of their child, with their consent, in a treatment study for children with anxiety disorders (if criteria is met).

**Risks:** Data provided to the researcher will initially be linked to identifying information, which involves a slight risk of breach of privacy and confidentiality. Steps have been taken to avoid such a breach, by using a coding system of the data provided so that names and other personal information are not connected to survey responses. Some participants could experience negative feelings when reporting their emotions on the measures; in the unlikely event that a participant reports to the researcher that excessive psychological discomfort resulted, the researcher would notify the IRB and refer the participant to an appropriate provider. There are no other foreseeable risks involved with participation in this study.

**Participation requirements:** Your participation and your child's participation are voluntary. You and/or your child may decide not to participate at all, or if you and your child begin, you and/or your child may stop at any time. Withdrawal or refusing to participate in this study will not affect your or your child's relationship with The University of Texas at Austin or the Texas Child Study Center in any way. Either you or your child may also withdraw after your materials have been submitted. To do so, please contact the principal investigator, Kati Morrison.

If you would like to participate, please sign this form and return it to the investigator. Please keep one copy of this form for your records if you would like.

If the results from these measures indicate that your child has a higher than typical amount of anxiety symptoms for his or her age, then you can choose to be contacted and given the opportunity for him or her to receive further testing at the Texas Child Study Center and potentially be invited to participate in an anxiety treatment study described above. There would be no expense to you and you would be under no obligation to participate.

**Compensation:** Your child will receive his or her choice of a \$10 gift card to iTunes or Target, which will be received upon completion and return of all child and parent measures in the packet. You will be

responsible for any taxes assessed on the compensation.

**Confidentiality:** All information attained in this study will be handled confidentially. Your information will be assigned a code number and the list connecting your child's name and/or your name to this code will be kept in a locked file. Your child's name and/or your name will not be used in any report or publication. The numeric coded data resulting from your participation may be used for future research or be made available for purposes not detailed within this consent form. If it becomes necessary for the Institutional Review Board to review the study records, information that can be linked to you will be protected to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order.

Should you choose to share your contact information to be reached regarding screening for a free anxiety treatment study (if your child displays elevated anxiety levels on the questionnaires), your name would be temporarily connected with protected health information voluntarily given on the demographic form. Specifically, you are asked to share whether you and/or your child has mental health diagnosis(es). Sharing of your contact information and mental health diagnosis(es) is completely voluntary. If you do opt to give your contact information and mental health information, once contacted for screening for the anxiety disorder your identifying information will be deleted. The data will be de-identified as described above, and the health information and data provided will not be connected with your name and contact information.

**Study contact:** Prior, during, or after your participation you can contact the Principal Investigator, Kati Morrison, M.A., at [katimo@gmail.com](mailto:katimo@gmail.com) or at (510)290-5588. This study has been reviewed and approved by the University of Texas Institutional Review Board and the study number is 2014-06-0017. For questions about your rights or to report dissatisfaction with any part of the study, you can contact the Institutional Review Board by phone (anonymously if you prefer) at (512) 471-8871 or email at [orsc@uts.cc.utexas.edu](mailto:orsc@uts.cc.utexas.edu). Faculty advisors associated with this study include Cindy Carlson, Ph.D., Professor and Department Head of Educational Psychology ([ccarlson@austin.utexas.edu](mailto:ccarlson@austin.utexas.edu), 512-471-0276) and Kevin Stark, Ph.D., Professor of School Psychology, Clinical Director of Psychology at the Texas Child Study Center ([kstark@austin.utexas.edu](mailto:kstark@austin.utexas.edu), 512-471-0267).

**Signature:** You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You voluntarily agree to participate in this study, and you also give permission for your child to do so. By signing this form, you are not waiving any of your legal rights. Please keep a copy of this document.

---

Parent/guardian printed name

---

Signature

---

Date

As a representative of this study, I have explained the purpose, procedures, benefits, and any risks involved in this research study.

Kati Morrison, M.A.

---

Printed name of person obtaining consent

---

Signature of Principal Investigator

---

## APPENDIX G

### YOUTH ASSENT FOR PARTICIPATION IN RESEARCH

Title: Testing a Model of Family Factors that Influence Youth Anxiety

You have been asked to be in a research study looking into how parts of a child's family life affect what they do to feel better and how nervous or worried they get. This study was explained to your parent and she/he said you could be in it if you want to.

#### **What am I going to be asked to do?**

If you agree to be in this study, you will:

- Fill out four surveys that usually take between 20-50 minutes to complete.

#### **What are the risks of being in this study?**

- Your name and information is at first linked to your answers you provide, and there is a small risk someone else could know your answers belonged to you. However, I will remove your name and keep information locked in a protected place to prevent this unlikely event.
- You could experience negative feelings when answering questions about emotions on the measures; in the unlikely event that you would feel upset, I would notify the IRB and help you find someone to work with a doctor or therapist to feel better.
- There are no other predicted risks involved with participation in this study.

#### **Do I have to participate?**

No, participation is voluntary. You should only be in this study if you want to. You can even decide you want to be in the study now, and change your mind later. No one will be upset. If you would like to participate, sign this form and give it to the adult that handed it to you. You will get a copy of this form in case you would like to look at it later.

Will I get anything to participate?

You will get your choice of a \$10 gift card to iTunes or Target when you return the completed surveys.

#### **Who will know about my participation in this research study?**

This study is private. Your answers may be used for a future study by these or other researchers but no one will know that it is your information.

#### **Signature**

Writing your name on this page means that the page was read by or to you and that you agree to be in the study. If you have any questions before, during, or after the study, ask the person in charge. If you decide to quit the study, all you have to do is tell your parent or the person in charge.

---

Signature of Participant

---

Date

## APPENDIX H

### PARENT DEMOGRAPHIC QUESTIONNAIRE

Please have one primary caregiver complete and return with the packet of completed questionnaires to your child's teacher or to school front office. All information is de-identified and kept confidential and secure. Thank you in advance. If you have any questions or concerns, please contact the principle investigator, Kati Morrison, M.A. (510-290-5588; [katimo@gmail.com](mailto:katimo@gmail.com)).

Number on your packet: \_\_\_\_\_

Relationship to child: \_\_\_\_\_

(provide one: biological parent, adoptive parent, step-parent, biological grandparent, biological legal guardian, non-biological legal guardian, other)

Sex: \_\_\_\_\_ Age: \_\_\_\_\_

Phone number : \_\_\_\_\_

(provide if you would like to be contacted if your child qualifies for screening for an anxiety treatment program described in the consent forms)

Highest level of education completed: \_\_\_\_\_

Total household income: \_\_\_\_\_

Relationship status: \_\_\_\_\_ Number of people you live with: \_\_\_\_\_

Race/Ethnicity: \_\_\_\_\_

Do you have any mental health diagnosis? \_\_\_\_\_

If so, what diagnosis/es? \_\_\_\_\_

Child's sex: \_\_\_\_\_ Child's age: \_\_\_\_\_

Child's school: \_\_\_\_\_ School District: \_\_\_\_\_

Current grade: \_\_\_\_\_ Main teacher: \_\_\_\_\_

Child's race/ethnicity: \_\_\_\_\_



Is your child on any medication? \_\_\_\_\_

If so, which medication(s)? \_\_\_\_\_

Does your child have any mental health diagnosis? \_\_\_\_\_

If so, what diagnosis/es? \_\_\_\_\_

## APPENDIX I

### STATE TRAIT ANXIETY INVENTORY (STAI; SPIELBERGER, GORSUCH, & LUSHENE, 1970)

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**DIRECTIONS:** Think of a time when your child was anxious. Read each statement and then blacken the appropriate circle to the right of the statement to indicate how you feel *when your child is anxious*. There are no wrong or right answers. Do not spend too much time on any one statement but give the answer which seems to describe your feelings best *when your child is anxious*.

	NOT AT ALL	SOMEWHAT	MODERATELY SO	VERY MUCH SO
1. I feel calm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I feel secure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I feel strained	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I feel at ease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## APPENDIX J

### FAMILY ACCOMMODATION SCALE-ANXIETY, PARENT AND CHILD VERSIONS (FASA-PR; FASA-CR; LEBOWITZ, 2013)

<b>Participation in symptom related behaviors in the past month</b>						
		<b>Never</b>	<b>1-3 times a month</b>	<b>1-2 times a week</b>	<b>3-6 times a week</b>	<b>Daily</b>
1	How often did you reassure your child?	0	1	2	3	4
2	How often did you provide items needed because of anxiety?	0	1	2	3	4
3	How often did you participate in behaviors related to your child's anxiety?	0	1	2	3	4
4	How often did you assist your child in avoiding things that might make him/her anxious?	0	1	2	3	4
5	Have you avoided doing things, going places or being with people because of your child's anxiety?	0	1	2	3	4
<b>Modification of functioning during the past month</b>						
6	Have you modified your family routine because of your child's symptoms?	0	1	2	3	4
7	Have you had to do things that would usually be your child's responsibility?	0	1	2	3	4
8	Have you modified your work schedule because of your child's anxiety?	0	1	2	3	4
9	Have you modified your leisure activities because of your child's anxiety?	0	1	2	3	4
<b>Distress and Consequences</b>		<b>No</b>	<b>Mild</b>	<b>Moderate</b>	<b>Severe</b>	<b>Extreme</b>
Does helping your child in these ways cause you distress?		0	1	2	3	4
Has your child become distressed when you have not provided assistance? To what degree?		0	1	2	3	4
Has your child become angry/abusive when you have not provided assistance? To what degree?		0	1	2	3	4
Has your child's anxiety been worse when you have not provided assistance? How much worse?		0	1	2	3	4

## Family Accommodation Scale-Anxiety, Child Version (FASA-CR; Lebowitz, 2013)

Participant: \_\_\_\_\_

Date: \_\_\_\_\_

### FAMILY ACCOMMODATION SCALE ANXIETY – CHILD REPORT (FASA-CR)

**DIRECTIONS:** *To be filled out by the child.* Parents do many different things to help their children not feel anxious (worried, nervous, anxious, or scared). Please circle the number under the column that best describes how much your parent did the things listed in the past month.

		Very Rarely	Rarely	Some times	Often	Very Often
1	How often did your parent reassure you (like tell you that you don't need to worry, tell you something is ok)?	0	1	2	3	4
2	How often did your parent give you things to make you feel better because you were anxious?	0	1	2	3	4
3	How often did your parent participate in (do with you) the things you do because you feel anxious?	0	1	2	3	4
4	How often did your parent help you avoid things that make you feel anxious (like tell your teacher not to call on you in class, let you stay home from school)?	0	1	2	3	4
5	How often did your parent avoid doing things, going places, or being with people because of your anxiety?	0	1	2	3	4
6	How often did your parent change the family routine because of your anxiety (like changing bed time, chores, or other routines)?	0	1	2	3	4
7	How often did your parent do things for you that you were supposed to do for yourself, because of your anxiety?	0	1	2	3	4
8	How often did your parents change his/her work schedule because of your anxiety?	0	1	2	3	4
9	How often did your parent change his/her fun plans because of your anxiety (like canceling an activity because you didn't want him/her to	0	1	2	3	4

	leave)?					
		<b>Strong ly Disagr ee</b>	<b>Disagr ee</b>	<b>Neithe r Agree nor Disagr ee</b>	<b>Agree</b>	<b>Strong ly Agree</b>
10	My parent gets upset when he/she helps me in these ways.	0	1	2	3	4
11	I get <i>upset</i> if my parent does <u>not</u> help me in these ways.	0	1	2	3	4
12	I get <i>angry</i> if my parent does <u>not</u> help me in these ways.	0	1	2	3	4
13	My anxiety gets worse when my parent does <u>not</u> help me in these ways.	0	1	2	3	4
14	When my parent helps me in these ways, I feel less anxious.	0	1	2	3	4
15	If my parent continues to help me in these ways, I will feel less anxious in the future.	0	1	2	3	4
16	I believe my parent should help me <u>less</u> in these ways, when I'm anxious	0	1	2	3	4

## APPENDIX K

### CHILDREN'S COPING STRATEGIES CHECKLIST, REVISION 1 (CCSR-R1; AYERS ET AL., 1996)

#### Children's Coping Strategies Checklist – Revision 1 (CCSC-R1)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

#### Instructions

Sometimes kids have problems or feel upset about things. When this happens, they may do different things to solve the problem or to make themselves feel better. For each item below, choose the answer that BEST describes how often you usually did this to solve your problems or make yourself feel better during the past month. There are no right or wrong answers, just indicate how often YOU USUALLY did each thing in order to solve your problems or make yourself feel better during the past month.

Item No.	Question/Response Format	Never	Some-times	Often	Most of the time
1	<i>When you had problems in the past month, you thought about what you could do before you did something.</i>	1	2	3	4
2	You tried to notice or think about only the good things in your life.	1	2	3	4
3	You tried to ignore it.	1	2	3	4
4	You told people how you felt about the problem.	1	2	3	4
5	You tried to stay away from the problem.	1	2	3	4
6	You did something to make things better.	1	2	3	4
7	You talked to someone who could help you figure out what to do.	1	2	3	4
8	You told yourself that things would get better.	1	2	3	4
9	You listened to music.	1	2	3	4
10	You reminded yourself that you are better off than a lot of other kids.	1	2	3	4
11	<i>When you had problems in the past month, you daydreamed that everything was okay.</i>	1	2	3	4
12	You went bicycle riding.	1	2	3	4
13	You talked about your feelings to someone who really understood.	1	2	3	4
14	You told other people what you wanted them to do.	1	2	3	4

		Never	Some- times	Often	Most of the time
15	You tried to put it out of your mind.	1	2	3	4
16	You thought about what would happen before you decided what to do.	1	2	3	4
17	<i>When you had problems in the past month, you told yourself that it would be OK.</i>	1	2	3	4
18	You told other people what made you feel the way you did.	1	2	3	4
19	You told yourself that you could handle this problem.	1	2	3	4
20	You went for a walk.	1	2	3	4
21	You tried to stay away from things that made you feel upset.	1	2	3	4
22	You told others how you would like to solve the problem.	1	2	3	4
23	<i>When you had problems in the last month, you tried to make things better by changing what you did.</i>	1	2	3	4
24	You told yourself you have taken care of things like this before.	1	2	3	4
25	You played sports.	1	2	3	4
26	You thought about why it happened.	1	2	3	4
27	You didn't think about it.	1	2	3	4
28	<i>When you had a problem in the past month, you let other people know how you felt.</i>	1	2	3	4
29	You told yourself you could handle what ever happens.	1	2	3	4
30	You told other people what you would like to happen.	1	2	3	4
31	You told yourself that in the long run, things would work out for the best.	1	2	3	4
32	You read a book or magazine.	1	2	3	4

		Never	Some- times	Often	Most of the time
33	<i>When you had problems during the past month, you imagined how you'd like things to be.</i>	1	2	3	4
34	You reminded yourself that you knew what to do.	1	2	3	4
35	You thought about which things are best to do to handle the problem.	1	2	3	4
36	You just forgot about it.	1	2	3	4
37	You told yourself that it would work itself out.	1	2	3	4
38	<i>When you had problems in the past month, you talked to someone who could help you solve the problem.</i>	1	2	3	4
39	You went skateboard riding or roller skating.	1	2	3	4
40	You avoided the people who made you feel bad.	1	2	3	4
41	You reminded yourself that overall things are pretty good for you.	1	2	3	4
42	You did something like video games or a hobby.	1	2	3	4
43	You did something to solve the problem.	1	2	3	4
44	<i>When you had problems in the last month, you tried to understand it better by thinking more about it.</i>	1	2	3	4
45	You reminded yourself about all the things you have going for you.	1	2	3	4
46	You wished that bad things wouldn't happen.	1	2	3	4
47	You thought about what you needed to know so you could solve the problem.	1	2	3	4
48	<i>When you had problems in the last month, you avoided it by going to your room.</i>	1	2	3	4
49	You did something in order to get the most you could out of the situation.	1	2	3	4
50	You thought about what you could learn from the problem.	1	2	3	4



		Never	Some- times	Often	Most of the time
51	You wished that things were better.	1	2	3	4
52	You watched TV.	1	2	3	4
53	You did some exercise.	1	2	3	4
54	You tried to figure out why things like this happen.	1	2	3	4

## APPENDIX L

### SCREEN FOR CHILD ANXIETY RELATED EMOTIONAL DISORDERS (SCARED) – CHILD VERSION (BIRMAHER ET AL., 1997)

#### Screen for Child Anxiety Related Disorders (SCARED) Child Version—Pg. 1 of 2 (To be filled out by the CHILD)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Directions:**

Below is a list of sentences that describe how people feel. Read each phrase and decide if it is “Not True or Hardly Ever True” or “Somewhat True or Sometimes True” or “Very True or Often True” for you. Then for each sentence, fill in one circle that corresponds to the response that seems to describe you for the last 3 months.

	0 Not True or Hardly Ever True	1 Somewhat True or Sometimes True	2 Very True or Often True
1. When I feel frightened, it is hard to breathe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I get headaches when I am at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I don't like to be with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I get scared if I sleep away from home.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I worry about other people liking me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. When I get frightened, I feel like passing out.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I am nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I follow my mother or father wherever they go.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. People tell me that I look nervous.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I feel nervous with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I get stomachaches at school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. When I get frightened, I feel like I am going crazy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I worry about sleeping alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I worry about being as good as other kids.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. When I get frightened, I feel like things are not real.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I have nightmares about something bad happening to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I worry about going to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. When I get frightened, my heart beats fast.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I get shaky.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I have nightmares about something bad happening to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Screen for Child Anxiety Related Disorders (SCARED)**  
**Child Version—Pg. 2 of 2 (To be filled out by the CHILD)**

	0 Not True or Hardly Ever True	1 Somewhat True or Sometimes True	2 Very True or Often True
21. I worry about things working out for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. When I get frightened, I sweat a lot.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I am a worrier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I get really frightened for no reason at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. I am afraid to be alone in the house.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. It is hard for me to talk with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. When I get frightened, I feel like I am choking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. People tell me that I worry too much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. I don't like to be away from my family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. I am afraid of having anxiety (or panic) attacks.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. I worry that something bad might happen to my parents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. I feel shy with people I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. I worry about what is going to happen in the future.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. When I get frightened, I feel like throwing up.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. I worry about how well I do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. I am scared to go to school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. I worry about things that have already happened.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. When I get frightened, I feel dizzy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. I feel nervous when I am with other children or adults and I have to do something while they watch me (for example: read aloud, speak, play a game, play a sport.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. I feel nervous when I am going to parties, dances, or any place where there will be people that I don't know well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. I am shy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**SCORING:**

A total score of  $\geq 25$  may indicate the presence of an **Anxiety Disorder**. Scores higher than 30 are more specific.

A score of 7 for items 1, 6, 9, 12, 15, 18, 19, 22, 24, 27, 30, 34, 38 may indicate **Panic Disorder** or **Significant Somatic Symptoms**.

A score of 9 for items 5, 7, 14, 21, 23, 28, 33, 35, 37 may indicate **Generalized Anxiety Disorder**.

A score of 5 for items 4, 8, 13, 16, 20, 25, 29, 31 may indicate **Separation Anxiety Disorder**.

A score of 8 for items 3, 10, 26, 32, 39, 40, 41 may indicate **Social Anxiety Disorder**.

A score of 3 for items 2, 11, 17, 36 may indicate **Significant School Avoidance**.

*\*For children ages 8 to 11, it is recommended that the clinician explain all questions, or have the child answer the questionnaire sitting with an adult in case they have any questions.*

Developed by Boris Birmaher, M.D., Suneeta Khetarpal, M.D., Marlene Cully, M.Ed., David Brent M.D., and Sandra McKenzie, Ph.D., Western Psychiatric Institute and Clinic, University of Pittsburgh (10/95). E-mail: birmaherb@msx.upmc.edu

## APPENDIX M

### MULTIDIMENSIONAL ANXIETY SCALE FOR CHILDREN-CHILD REPORT (MASC-CR; MARCH, 1997).

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MASC					
Client ID		Date			
<p>This questionnaire asks you how you have been thinking, feeling, or acting recently. For each item, please circle the number that shows how often the statement is true for you. If a sentence is true about you a lot of the time, circle 3. If it is true about you some of the time, circle 2. If it is true about you once in a while, circle 1. If a sentence is not ever true about you, circle 0. Remember, there are no right or wrong answers, just answer how you have been feeling recently.</p>					
<p>There are two examples to show you how to complete the questionnaire. In Example A, if you were hardly ever scared of dogs, you would circle 1, meaning that the statement is rarely true about you. In Example B, if thunderstorms sometimes upset you, you would circle 2, meaning that the statement is sometimes true about you.</p>					
		Never true about me	Rarely true about me	Sometimes true about me	Often true about me
Example A	I'm scared of dogs	0	1	2	3
Example B	Thunderstorms upset me	0	1	2	3
1	I feel tense or uptight	0	1	2	3
2	I usually ask permission	0	1	2	3
3	I worry about other people laughing at me	0	1	2	3
4	I get scared when my parents go away	0	1	2	3
5	I keep my eyes open for danger	0	1	2	3

## APPENDIX N

### CORRELATION MATRIX FOR MAIN ANALYSIS

	1	2	3	4	5	6	7	8	9	10
1. Communication	1									
2. Control	0.692	1								
3. Involvement	0.599	0.669	1							
4. Affective Expression	0.697	0.616	0.673	1						
5. MASC	0.084	0.094	0.081	0.094	1					
6. SCARED	0.065	0.072	0.063	0.073	0.523	1				
7. FASA - PR	0.065	0.073	0.063	0.073	0.39	0.301	1			
8. FASA - CR	0.078	0.087	-0.038	0.088	0.468	0.362	0.413	1		
9. State Anxiety	0.239	0.266	0.23	0.268	0.215	0.166	0.178	0.213	1	
10. Trait Anxiety	0.2	0.223	0.193	0.224	0.18	0.139	0.149	0.179	0.77	1

## APPENDIX O

### CORRELATION MATRIX FOR EXPLORATORY ANALYSIS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Optimism	1													
2. Cognitive Decision Making	0.469	1												
3. Seek Understanding	0.651	0.541	1											
4. Control	0.525	0.66	0.606	1										
5. Positivity	0.501	0.629	0.578	0.704	1									
6. Direct Problem Solving	0.47	0.59	0.542	0.661	0.63	1								
7. Wishful Thinking	0.344	0.432	0.397	0.484	0.461	0.433	1							
8. Avoidant Action	0.25	0.314	0.288	0.352	0.335	0.315	0.436	1						
9. MASC	0.053	0.067	0.062	0.075	0.072	0.067	0.384	0.279	1					
10. SCARED	0.043	0.054	0.05	0.061	0.058	0.054	0.311	0.226	0.48	1				
11. FASA - PR	0.013	0.017	0.016	0.019	0.018	0.017	0.164	0.119	0.376	0.304	1			
12. FASA - CR	0.018	0.023	0.021	0.025	0.024	0.023	0.218	0.158	0.5	0.405	0.409	1		
13. Trait Anxiety	-0.063	-0.079	-0.072	-0.088	-0.084	-0.079	-0.013	-0.01	0.16	0.13	0.126	0.168	1	
14. State Anxiety	-0.077	-0.097	-0.089	-0.108	-0.103	-0.097	-0.016	-0.012	0.196	0.159	0.155	0.205	0.817	1

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