A Thesis

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Parental Overprotection and Child Anxiety Symptoms: The Mediating Role of Perceived Control of Anxiety

by

Shannon Manley

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the

Master of Arts Degree in Clinical Psychology

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An Abstract of

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Barlow's (1998, 2000, 2002) triple vulnerability model of anxiety suggests that anxiety develops as a result of risk factors at three different levels: the general biological component, the general psychological component, and the specific psychological component. Risk resulting from the general psychological component is hypothesized to contribute to the diathesis of anxiety by the individual learning through early experiences that they do not have control over anxiety-related events and feelings. Chorpita, Brown, and Barlow (1998) tested this hypothesis and found that the relationship between overcontrol in the family environment and child anxiety was mediated by children's locus of control. The purpose of the current study was to reexamine the Chorpita et al. (1998) mediational model using more contemporary and precise statistical analyses and measures of the key constructs of interest—namely parent overprotection, perceived control of anxiety, and an updated measure of child anxiety symptoms. A school sample of 138 children (M = 11.09, SD = 1.75) completed self-report measures as part of a larger study. Results indicated that child perceived control of anxiety was significantly related to child anxiety in the predicted direction, but that parent overprotection was unrelated to

child anxiety and correlated in the opposite direction than predicted with perceived control of anxiety. Child perceived control of anxiety was found to partially mediate the relationship between parent overprotection and child anxiety. These results support the proposal that low and high perceived control of anxiety serve as risk and protective factors for child anxiety, respectively.

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List of Abbreviations

ACQ .....Anxiety Control Questionnaire
ACQ-C .....Anxiety Control Questionnaire for Children
ADIS-IV C/P.....Anxiety Disorders Interview Schedule for Children-Fourth Edition

BCa CI .....Bootstrap Percentile Confidence Interval

CCC.....Contingency-Competence-Control

DSM.....Diagnostic and Statistical Manual

EMBU .....Egna Minnen Beträffande Uppfostran
EMBU-A.....Egna Minnen Beträffande Uppfostran-Adolescent
EMBU-C .....Egna Minnen Beträffande Uppfostran-Child

FES.....Family Environment Scale

GAD.....Generalized Anxiety Disorder

LOC.....Locus of Control

MAR .....Missing at Random
MASC .....Multidimensional Anxiety Scale for Children
MCAR.....Missing Completely at Random
MDD .....Major Depressive Disorder
MNAR.....Missing Not at Random

NSLOC .....Nowicki-Strickland Locus of Control Scale

OCD .....Obsessive-Compulsive Disorder

PBI .....Parental Bonding Instrument
PC.....Perceived Control
PCA.....Perceived Control of Anxiety
PD .....Panic Disorder

RCADS .....Revised Child Anxiety and Depression Scale
RCMAS.....Revised Children's Manifest Anxiety Scale

SAD.....Separation Anxiety Disorder
SAS .....Statistical Analysis System
SCAS.....Spence Children's Anxiety Scale
SD .....Standard Deviation
SE.....Standard Error
SES.....Socioeconomic Status

SP .....Social Phobia
SPSS.....Statistical Package for the Social Sciences
STAIC .....State-Trait Anxiety Inventory for Children

List of Symbols

α .....Significance level
α .....Cronbach's alpha; measure of internal consistency reliability
κ^2 .....Measure of effect size

a.....Relationship between the independent variable and mediator
b.....Relationship between the mediator and outcome variable
b.....Unstandardized regression coefficient
c.....Relationship between the independent and outcome variables
c' .....Relationship between the independent and outcome variables, controlling for the mediator
d.....Measure of effect size
f^2 .....Measure of effect size
M .....Mean
p.....Measure of statistical significance
r.....Correlation coefficient
t .....Measure of mean comparison

Chapter One

Introduction

Prevalence and Impact of Childhood Anxiety Disorders

Anxiety disorders have far-reaching effects for youth. Examples of the negative impact anxiety disorders have on children's functioning include academic difficulties (Nail et al., 2015), impairments in peer and familial relationships (Ezpeleta, Keeler, Alaatin, Costello, & Angold, 2001), and mental health problems later in life (e.g., Kessler et al., 2012) Of all the psychiatric disorders, they are the most commonly diagnosed among children and adolescents (referred to collectively as children hereafter; Cartwright-Hatton, McNicol, & Doubleday, 2006; Kessler et al., 2012; Merikangas et al., 2010). The *Diagnostic and Statistical Manual, 5th edition* (*DSM-5*; American Psychiatric Association, 2013) differentiates seven anxiety disorders: separation anxiety disorder, selective mutism, social anxiety disorder, specific phobia, panic disorder, agoraphobia, and generalized anxiety disorder. Although the focus of each is slightly different, all entail the common elements of fear and avoidance. For all anxiety disorders combined, the rate of diagnosis for children under 12 is between 2.6% and 41.2% (Cartwright-Hatton et al., 2006), and the twelve-month prevalence rate for those aged 13 to 17 is 24.9% (Kessler et al., 2012). The lifetime prevalence rate is 38.0% for females and 26.1% for males (Merikangas et al., 2010).

For those youth who are diagnosed with at least one anxiety disorder, there are many poor outcomes for which they are at increased risk. Children diagnosed with an anxiety disorder are twice as likely to have impairment in family, educational, or peer functioning as those without a mental disorder (Ezpeleta et al., 2001). Research indicates

that a diagnosis of an anxiety disorder during childhood is related to diagnoses of depression, anxiety, substance abuse, and other mental disorders later in life (e.g., Feehan, McGee, & Williams, 1993; Ferdinand & Verhulst, 1995; Higa-McMillan, Francis, & Chorpita, 2014; Keller et al., 1992; Pine, Cohen, Gurley, Brook, & Ma, 1998; Woodward & Fergusson, 2001). Indeed, data from the National Comorbidity Study Replication—Adolescent Supplement indicate that a diagnosis of specific phobia, agoraphobia, social anxiety disorder, or panic disorder during childhood or adolescence is the most powerful predictor of subsequent psychopathology (Kessler et al., 2012). In addition to the distress and long-term mental health ramifications, anxiety disorders are also a financial burden for both families of anxious youth (Bodden, Dirksen, & Bögels, 2008) and those whose disorder endures into adulthood (DuPont et al., 1996). Finally, children with a subclinical symptom presentation, but who present with increased anxiety symptomatology, have a risk for functioning deficits (Grover, Ginsburg, & Ialongo, 2007) and anxiety diagnoses in adulthood (Hirshfeld et al., 1992) similar to their diagnosed peers. Therefore, studying the etiology of anxiety, especially in children, is imperative in order to prevent both short- and long-term disability in many areas of functioning.

Etiological Models of Anxiety

There have been a plethora of etiological models of anxiety (for a comprehensive overview see Higa-McMillan et al., 2014). Previously these models have focused singularly on one factor, such as heredity (Turner, Beidel, & Costello, 1987), neuropsychology (Clark & Watson, 1991; Gray & McNaughton, 1996), or behavioral inhibition (Biederman et al., 1990), to globally explain the phenomenon of anxiety;

however, more recent theoretical models have integrated biological, psychological, environmental, and developmental risk factors. Of these, the most well-supported is the triple vulnerability model (Barlow, 1988; 2000, 2002), which posits that there are three components that contribute to the diathesis of anxiety: a general biological component—including both direct genetic and temperamental vulnerabilities; a general psychological component—characterized by learning through early experiences to believe that one does not have control over anxiety-related events and feelings; and a more specific psychological component—which deals with learning to associate this general belief in lacking control with specific feared objects or events. The level of inquiry of the present study was at that of the general psychological vulnerability.

The general psychological vulnerability component of Barlow's model (1988, 2000) was derived from work on locus of control and attachment theory. Barlow outlined a body of evidence which suggested the importance of parenting in the development of a feeling of control in early childhood (Chorpita & Barlow, 1998). Two specific parenting styles which were proposed to foster this sense of control were "contingent responsiveness" and diminished "intrusiveness and protectiveness" (Barlow, 2000, p. 1255). Thus, parents who provide their children opportunities to exercise control over and explore their environments foster the development of skills in their children to cope with the unknown and unexpected. In contrast, it is believed that parents who are overly controlling of their children's environments stifle the development of these skills. It was therefore predicted that children raised in an overcontrolling environment would experience a "diminished sense of personal control" over their surroundings and

experiences, which would ultimately contribute to the onset of anxious symptomatology (Barlow, 2000, p. 1255).

The Chorpita, Brown, and Barlow (1998) Model

Barlow's (1988, 2000) general psychological vulnerability was subsequently tested by Chorpita, Brown, and Barlow (1998) in a cross-sectional study of 93 families with children aged 6 to 15 years old. Of these, 62 were recruited from clinic referrals to a clinic specializing in anxiety. Children in this clinical sample included individuals with a primary anxiety or mood disorder diagnosis. The authors' predictions and methods were influenced by the literature regarding the etiology of depression (Chorpita & Barlow, 1998). Specifically, this depression research found that attributional style mediated the relationship between positive and negative activities and depressive symptoms in fourth-, sixth-, and eighth-graders (Cole & Turner Jr., 1993).

Based on these previous findings, Chorpita et al. (1998) predicted that the relationship between control in the family environment and child negative affectivity would be mediated by the child's sense of control. They also included attributional style as a potential secondary mediator, as well as clinician severity ratings of the child's psychopathological symptoms from both parent and child clinical interviews. Chorpita et al. (1998) tested their predictions using structural equation modeling. Analyses determined that a model in which the child's sense of control acted as a mediator of the relationship between family environment (overcontrolling) and anxiety symptoms was the best fit for the data (Figure 1).

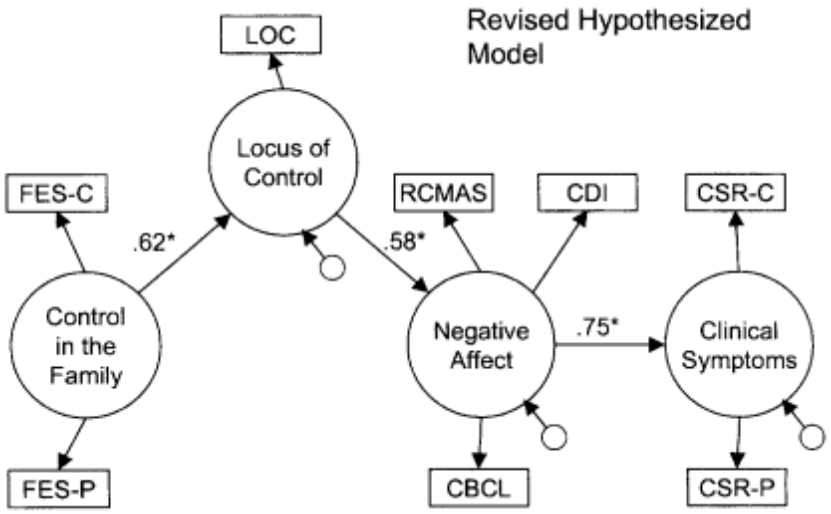

Figure 1. Chorpita, Brown, and Barlow (1998) mediational model.

It should also be noted that in the adult depression literature, attributional style was found to be a moderator between environmental events and depression (Abramson, Metalsky, & Alloy, 1989). This is in contrast to the findings in children mentioned previously in which attribution was a mediator in this relationship. These divergent findings between different age groups suggested that cognitive factors may mediate the relationship between environmental factors and psychopathology in early and middle childhood, but they might subsequently develop into moderators during later childhood. Because Chorpita et al. (1998) also found support for a mediational model for anxiety in children, it was hypothesized that—similar to the depression model—cognitive factors such as control would become moderators later in adolescence (Chorpita & Barlow, 1998). Of this, Chorpita and Barlow (1998) wrote that:

> the environment may help to foster a cognitive template, with early uncontrollable experience contributing to the formation of a cognitive vulnerability (i.e., mediational model). Later in development, this vulnerability may then begin to

operate as an amplifier for environmental events (i.e., moderational model; p. 9-10).

At present, while evidence for the mediational model in children has received continued support (Affrunti & Ginsburg, 2012b; Chorpita et al., 1998; Nanda, Kotchick, & Grover, 2012), there has been little support for the switch to moderation later in development. In fact, cognitive factors appear to continue to mediate the relationship between environmental factors and anxiety in adolescence (B. Gallagher & Cartwright-Hatton, 2008) and adulthood (Ballash, Pemble, Usui, Buckley, & Woodruff-Borden, 2006).

Control

Control is an extremely broad term in psychology (Skinner, 1996). In terms of anxiety research, there are four major control constructs: learned helplessness, self-efficacy, locus of control, and perceived control (Barlow, 2002; Chorpita & Barlow, 1998; M. Gallagher, Bentley, & Barlow, 2014; Weems & Silverman, 2006), each of which will be discussed in turn below.

Learned helplessness. Learned helplessness at its root describes the phenomenon of animals failing to avoid unpleasant events when they are capable of doing so following a scenario in which the unpleasant event was unavoidable (Seligman, 1975). When this phenomenon was studied in humans, Abramson, Seligman, and Teasdale (1978) theorized that it could be generalized to everyday life. Specifically, they reasoned that after encountering situations in which an individual felt like their actions had no effect on a negative event, they would attempt to explain the cause of their helplessness. The individuals' perception of this cause was hypothesized to vary along three factors: site (internal versus external), stability (stable versus unstable), and scope (global versus

specific; Weems & Silverman, 2006). According to Abramson et al. (1978), if causes of helplessness are consistently experienced as internal, stable, and global, then disorders of emotion—such as anxiety and depression—may develop. Studies analyzing the relationship between learned helplessness—and the related concept of attribution—and youth anxiety have shown that it is a moderate one (Weems & Silverman, 2006).

Self efficacy. Self-efficacy is defined as the "individual's beliefs about their confidence in their competence to successfully execute behaviors to produce and regulate events in their lives" (Weems & Silverman, 2006, p. 115). Those who have high self-efficacy believe that they are able to use their actions to control situations, but those who have low self-efficacy do not believe that they have this competence (Bandura, 1982). Self-efficacy is thus distinct from other definitions of control, as it focuses on the individual's belief in their ability to produce behaviors that can control events, rather than on simply describing the causes of perceived uncontrollability (learned helplessness/attribution), or attributing reinforcement events as something controllable or uncontrollable (locus of control). This construct of control has also been found to be related to child anxiety (e.g. Messer & Beidel, 1994).

Locus of control. The concept of locus of control (LOC) is rooted in social learning theory (Rotter, 1966), as it entails the causal determination an individual makes for reinforcement events. Specifically, an individual can either attribute events to their inherent traits and skills—termed internal LOC—or to environmental forces or situations—termed external LOC (Weems & Silverman, 2006). It has long been hypothesized that having an external LOC—a real or perceived inability to control positive outcomes in one's life—leads to the development of anxiety (Mandler &

Watson, 1966). In fact, LOC measures were used as the control measure in the formulation of the triple vulnerability model (Barlow, 2000).

LOC was originally conceptualized as a unidimensional construct that encompassed control attributions across all aspects of life (Rotter, 1966). However, subsequent analyses using popular LOC measures have suggested that LOC may encompass two or more separate factors (Coan, Fairchild, & Dobyns, 1973; Klockars & Varnum, 1975; Lange & Tiggemann, 1981). This conclusion stems from two pieces of evidence (Rapee, Craske, Brown, & Barlow, 1996). First, reliability of LOC measures is satisfactory, but relatively low, suggesting that items and responses to them may be heterogeneous. The internal consistency reliability of Rotter's Internal-External Locus of Control Scale, for example, ranges from .65 to .79 (Lange & Tiggemann, 1981; Rapee et al., 1996; Rotter, 1966). Second, factor analyses have concluded that items on LOC scales load onto more than one factor, suggesting that there may be subcomponents of LOC that encompass control cognitions in separate areas of life. For example, the Rotter Internal-External Locus of Control Scale (Rotter, 1966) and Adult Nowicki-Strickland Locus of Control Scale (Nowicki & Duke, 1974), two of the most widely-used adult LOC measures, have both been found to contain two or more separate factors (Finch Jr., Spirito, Kendall, & Mikulka, 1981; Harper, Oei, Mendalgio, & Evans, 1990; Klockars & Varnum, 1975; Lange & Tiggemann, 1981). Rotter's Internal-External scale items were found to load onto two factors—political and general control—by Harper et al. (1990), while the results obtained by Klockars and Varnum (1975) suggested six factors: luck, personal responsibility, political control, school performance responsibility, control over world events, and control over one's life direction. For the Adult Nowicki-Strickland

scale, Finch et al. (1981) found that the items loaded onto five factors: inability to protect oneself, lack of social power, superstition/belief in luck, futility, and belief that effort is useless.

The Child Nowicki-Strickland Locus of Control Scale (NSLOC)—which was used by Chorpita et al. (1998) as their measure of control—also demonstrates these shortcomings. It's split-half and test-retest reliabilities are not particularly high; although, they are still considered to be adequate (Chorpita et al., 1998; Nowicki & Strickland, 1973). Additionally, Kendall, Finch, Little, Chirico, and Ollendick (1978) found that the number of resulting factors differed across samples. In a sample of normal-functioning youths, they found that items mapped onto three major factors: generalized expectancy, intellectual concern, and effort. However, four factors emerged for children who were emotionally disturbed: helplessness, persecution, superstition, and futility. Results from a juvenile delinquent sample also found four factors; however, these were characteristically different from those of the emotionally disturbed sample. They instead included superstition, helplessness at home, helplessness with friends, and helplessness with parents. These findings suggest that LOC is multidimensional and that measuring it using unidimensional scales such as the NSLOC may be inaccurate.

Perceived control. Finally, perceived control (PC) can generally be defined as "a belief an individual holds about the nature of control over situational factors and events" (Weems & Silverman, 2006, p. 117). Moreover, it is "generally conceptualized as a prototypical agent-ends relation; when individuals (i.e., agents) believe they can produce desired outcomes (i.e., ends), they demonstrate perceived control" (M. Gallagher et al., 2014, p. 572). PC can be regarded as a construct that integrates control concepts

discussed above. Similar to LOC, for example, the agent can be perceived to be internal or external. More specifically, control can be attributed to oneself (i.e., internally), or to either "powerful others" or unknown forces (i.e., externally; Weems & Silverman, 2006, p. 118) However, PC can also be considered its own construct. It diverges from other control constructs in that it provides an explicit distinction between PC (the individual's beliefs about control) and actual control (what or who is realistically in control of the event). Furthermore, perceived and actual control can be incongruent. That is, one can have high PC when actual capacity for control is low, or low PC when actual capacity for control is high. It has been theorized that this latter example of incongruence is especially relevant for the development of psychopathology (M. Gallagher et al., 2014; Weems & Silverman, 2006). As mentioned previously, the triple vulnerability model's general psychological component was initially operationalized using LOC measures (Barlow, 2000; Chorpita et al., 1998); however, PC may be a better fit for the measurement of this vulnerability. This is not only due to the critique regarding the construction of LOC and its measures, but also because Barlow's (2000. 2002) conceptualization of control in his model aligns more closely with PC. For example, he summarized the non-human animal research associating control and anxiety by stating that "the development of coping responses that imply a sense of control (whether real or apparent) also buffers anxiety" (Barlow, 2000, p. 2154). This emphasis on the importance of perception is mirrored in the conceptualization of the PC construct, as described above. Therefore, in the present study PC was used as the control construct rather than LOC.

PC has also been a construct of interest in childhood depression research, and is an integral component of the contingency-competence-control (CCC) model (Magaro &

Weisz, 2006; Weisz, 1986; Weisz, Southam-Gerow, & McCarty, 2001; Weisz & Stipek, 1982; Weisz, Sweeney, Proffitt, & Carr, 1993). In the CCC model, contingency— "the degree to which an outcome depends on the behavior of relevant individuals"—and competence— "an individual's level of ability to produce the behavior on which the desired outcome is contingent"—are both related to and predict control— "the capacity to produce an intended outcome" (Weisz et al., 2001, p. 97-98). However, PC is not completely encompassed by contingency and competence, as situational and transitory variables—such as experiencing a temporary boost of confidence from a good test grade—also account for some variance. Because of this, PC measures have supplemented those of contingency and competency in order to account for more variance (Weisz et al., 2001). Additionally, Weisz et al. (2001) found that contingency was only directly related to depressive symptoms in adolescents, and that the relationship was mediated in children through PC. In the depression literature PC has also been studied as a mediator in other relationships. Magaro and Weisz (2006), for example, found that PC mediates the relationship between parental rejection and depressive symptoms in clinic-referred children.

Like the criticism of LOC described previously, researchers posited that PC is also too generalized. Factor analyses supported this hypothesis, suggesting that there may be several subtypes of perceived control (Berrenberg, 1987; Coan et al., 1973; Paulhus, 1983; Rapee et al., 1996). It was subsequently recommended that more domain-specific PC measures be developed to more accurately test relevant predictions (Rapee et al., 1996). Examples of more specialized scales include perceived control of time (Macan,

Shahani, Dipboye, & Phillips, 1990), internal states (Pallant, 2000), and stressful events (Frazier et al., 2011).

Accordingly, a more anxiety-specific conceptualization of perceived control was developed. The measure that was developed to test this perceived control of anxiety-provoking feelings and situations was called the Anxiety Control Questionnaire (ACQ; Rapee et al., 1996). Subsequent revised (Brown, White, Forsyth, & Barlow, 2004) and children's (ACQ-C; Weems, Silverman, Rapee, & Pina, 2003) versions of the ACQ have been developed as well. The ACQ has been previously used to test the Chorpita et al. (1998) model. Ballash et al. (2006) found that perceived control over anxiety (PCA)—as measured by the ACQ—mediated the relationship between family over-involvement and anxiety symptoms in young adults aged 18 to 25. In the current study the child version (the ACQ-C) was used to test the model. This measure was specifically chosen because it is the only child self-report measure of PCA.

Family Environment and Parenting Style

The development of control-related cognitions stems from early experience (Barlow, 2000; Chorpita & Barlow, 1998; Chorpita et al., 1998). This early experience is comprised primarily of family structure and parenting styles (Chorpita & Barlow, 1998). In the case of the former, there has been evidence to suggest that family size and birth order may have an effect (Chorpita & Barlow, 1998). Specifically, oldest or only children have been found to have an increased internal locus of control compared to younger children from larger families (e.g., Hoffman & Teyber, 1979). It is thought that family environments in which children have more direct access to and attention from their

parents early in life (i.e., only and oldest children) tend to foster a sense of environmental controllability.

More recent research has focused on the relationship between parenting factors and the development of anxiety in children (Rapee, 2012). As was discussed previously, Chorpita and Barlow (1998) proposed that children with parents who were responsive, but allowed their children to independently explore their environments, would be expected to have an increased sense of control. Therefore, children whose parents were overbearing and intrusive would not develop this sense of mastery over their environment. Chorpita et al. (1998) tested this in their mediational model of control in the form of family overcontrol. However, they assessed family overcontrol using a subscale from a generalized family environment measure called the Family Environment Scale (FES; Moos, Insel, & Humphrey, 1974). This measure assesses interpersonal characteristics of the family as a unit, and, therefore, Chorpita et al. (1998) assessed parenting style indirectly. In the current study a more direct measure of parental overcontrol was used.

The control construct that has been incorporated into theories in this area most often is that of parent overprotection (Chorpita & Barlow, 1998; Rapee, 2012). This well-established concept—which has even been shown to have predictive value for anxiety diagnoses in adolescents (Beesdo, Pine, Lieb, & Wittchen, 2010)—may be a more specific substitute for general overcontrol in the family environment and could be used to further test the mediational model of control for the relationship between early childhood experience and the development of anxiety symptoms. Affrunti and Ginsburg (2012b) used a measure of overprotection in a study assessing the mediating role of children's

perceived competence. However, no study has yet to examine both overprotection and perceived control over anxiety symptoms simultaneously.

Measuring overcontrol and overprotection typically takes the form of either direct observation of parent-child interactions (e.g., Dumas, LaFreniere, & Serketich, 1995; Hudson & Rapee, 2001) or self-report of perceived parenting behavior (e.g., Grüner, Muris, & Merckelbach, 1999; Wei & Kendall, 2014). A self-report measure was chosen for the present study, as it was used as part of a larger survey-based design. There are several overprotection measures available; however, most of these options were not developed for the age range of interest in the current project. For example, the Parental Overprotection measure is a parent-reported questionnaire that assesses the construct of interest, but the population of interest is preschool-aged children and their parents (Edwards, Rapee, & Kennedy, 2010). Similarly, the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) is a self-report measure of both parental warmth and overprotection, but it was developed for adults to retrospectively report on their perception of their parents' rearing styles during their first 16 years of life. There have, however, been studies that have adapted the PBI for use with children (e.g., Greco & Morris, 2002; Klimidis, Minas, & Ata, 1992).

One of the most popular measures of perceived parenting style is the Egna Minnen Beträffande Uppfostran (EMBU; Perris, Jacobsson, Linndström, von Knorring, & Perris, 1980). Like the PBI, this Swedish measure was also developed to retrospectively assess perceived parenting style in adults, but has since been modified for use with both children (EMBU-C; Gruner, Muris, & Merckelbach, 1999; Young et al., 2013) and adolescents (EMBU-A; Gerlsma, Arrindell, Van der Veen, & Emmelkamp,

1991). Various versions of the EMBU have also been translated into several languages, including English (Young et al., 2013) and Spanish (Castro, Toro, Van der Ende, & Arrindell, 1993). The present study used a modified English version of the EMBU-C (Young et al., 2013), which assesses four parenting variables: warmth, rejection, anxious rearing, and overprotection.

Measuring Anxiety

Anxiety can be measured in several different ways. Methodological options include clinician-administered interviews, (e.g., Silverman & Albano, 1996) and questionnaires, both of which are often child-, parent-, and even teacher-report. The operationalization of anxiety can also differ across assessment tools. Some measures assess specific anxiety symptoms, such as fear (e.g., Ollendick, 1983), worry (e.g., Chorpita, Tracey, Brown, Collica, & Barlow, 1997), and panic (e.g., Elkins, Pincus, & Comer, 2014). Others assess several symptoms simultaneously. For example, the State-Trait Anxiety Inventory for Children (STAIC; Spielberger & Edwards, 1973) measures two anxiety constructs: state and trait anxiety. State anxiety is a relatively transient experience of anxiety that is associated with situational stressors, while trait anxiety is a more enduring dispositional tendency to be anxious across situations. Those high in trait anxiety, therefore, are believed to have increased state anxiety at any given time. Both constructs take symptoms such as worry, tension, and upset into account (Marteau & Bekker, 1992).

Chorpita et al. (1998) chose the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) to measure anxiety in their model. This is another self-report scale that measures multiple symptoms, including various cognitive,

affective, and behavioral components of anxiety. However, rather than assessing symptoms of anxiety, the RCMAS instead appears to assess negative affect (Lonigan, Carey, & Finch Jr., 1994; Ollendick, Seligman, Goza, Byrd, & Singh, 2003; Stark & Laurent, 2001)—a temperamental risk factor for both anxiety and depression (Clark & Watson, 1991; Mineka, Watson, & Clark, 1998; Watson, Clark, & Chmielewski, 2008). Therefore, the RCMAS may not be the most precise and effective measure of anxiety.

There are also anxiety measures that more specifically assess symptomatological criteria for various anxiety disorders. These include scales that address a single disorder of interest, such as the Social Anxiety Scale for Children-Revised (La Greca & Stone, 1993), as well as those that assess for criteria of multiple disorders (e.g., Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000; March, Parker, Sullivan, Stallings, & Conners, 1997; Silverman & Albano, 1996; Spence, 1998). Disorder-specific symptom measures are useful in both clinical and research application. For clinical purposes these scales may be more precise in diagnostic accuracy and monitoring of change over time because they "are less saturated with variance of traits that may not be of substantive interest to the investigator" (e.g., general distress, somatic arousal; Chorpita et al., 2000, p. 853). For research purposes their use helps with "validation of criteria sets for individual diagnoses" and understanding "the prevalence and distribution of individual diagnostic symptoms" (Chorpita et al., 2000, p. 853). Because the distribution of anxiety symptoms is of interest in the current study, a disorder-specific symptom measure was used. More precisely, it used a measure that assesses criteria for multiple disorders, as the general psychological vulnerability being examined is a theoretical precursor to all anxiety disorders. There are several options in this category that can be considered, including the

Multidimensional Anxiety Scale for Children (MASC), Spence Children's Anxiety Scale (SCAS), and Revised Child Anxiety and Depression Scale (RCADS).

The MASC is a 39-item measure with four subscales measuring various anxiety symptom clusters, three of which have secondary factors (March et al., 1997). The factors include physical symptoms, which consist of tension/restlessness and somatic/autonomic symptoms; social anxiety, including symptoms of humiliation/rejection and fear of public performance; harm avoidance, which involves anxious coping and perfectionism tendencies; and separation anxiety. In an initial validation study, internal consistency reliability of the four factors ranged from acceptable to good (α = .74-.85) and the total scale score reliability was also good (α = .90; March et al., 1997). Subsequent studies have replicated these favorable psychometric findings, and have demonstrated that the MASC functions well discriminating between children with and without anxiety disorder diagnoses (Villabø, Gere, Torgersen, March, & Kendall, 2012; Wei et al., 2014). Cross-cultural analyses have also suggested that the MASC factor structure holds up relatively well (Tan, Wu, & Yao, 2010; Yen, Yang, Wu, Hsu, & Cheng, 2010). Despite this, the MASC has one major limitation: its disorder-specific subscales were not designed to map onto symptom criteria described in the *Diagnostic and Statistical Manual* (*DSM*). Given that these criteria represent the current nosological consensus for anxiety disorders, the current study sought to employ a measure designed to map onto them.

The SCAS (Spence, 1997) is a 45-item measure with seven subscales, including a social desirability measure and six anxiety symptom subscales titled panic/agoraphobia, social anxiety, separation anxiety, generalized anxiety, obsessions/compulsions, and fear of physical injury. Its total score has good internal consistency reliability (α = .92) and

has demonstrated convergent validity with other anxiety-related measures, such as the RCMAS (Spence, 1997). However, two theoretical and psychometric problems have arisen for the SCAS. First, the fear of physical injury scale has been found to have the lowest internal consistency reliability of the subscales, and exploratory factor analyses have suggested that its items load onto multiple factors (Chorpita et al., 2000; Spence, 1998). Second, its generalized anxiety measure focuses on *DSM-III-R* symptoms of over-anxiousness and autonomic arousal instead of the excessive uncontrollable worry that defines generalized anxiety disorder in the *DSM-IV-TR* (Chorpita et al., 2000) and *DSM-5*.

The RCADS was developed from the SCAS to address its limitations (Chorpita et al., 2000). This was accomplished by initially adding items reflective of *DSM-IV* criteria for Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD), which were inspired by other GAD and MDD measures and reviewed by experts in youth anxiety and mood disorders (Chorpita et al., 2000). A sample of 1,641 children in grades 3-12 were then administered the initial measure, and exploratory factor analyses were conducted. The final version included six factors corresponding to MDD, as well as the *DSM-IV* anxiety disorders of Obsessive-Compulsive Disorder (OCD), GAD, Social Phobia (SP), Separation Anxiety Disorder (SAD), and Panic Disorder (PD). Summed anxiety disorder subscales yielded a total anxiety measure, and the sum of all items—including MDD—produces a total scale score reflective of both anxiety and depressive symptoms. Subsequent analyses have suggested that the RCADS demonstrates good convergent and discriminant validity (Chorpita, Moffitt, & Gray, 2005; de Ross, Gullone, & Chorpita, 2002) and its subscales display equivalent or better correspondence to

relevant disorders compared to other disorder-specific self-report measures (Chorpita et al., 2005). Because of its orientation toward *DSM-IV* symptom criteria, assessment of multiple anxiety disorders, and good psychometrics, the current study used the RCADS as its measure of child anxiety.

Mediational Analyses

Chorpita et al. (1998) tested their mediational model using the causal steps approach suggested by Baron and Kenny (1986). This involves a series of regression equations being conducted between the independent and outcome variables, as well as the proposed mediator. This method proposes that four outcomes must be present in a mediational relationship (Figure 2): (1) the relationship between the independent variable and mediator must be significant (*a*); (2) the relationship between the independent and outcome variables must be significant (*c*); (3) the relationship between the mediator and outcome variable must be significant (*b*); and (4) the relationship between the independent and outcome variables must be weakened after controlling for the mediator (*c'*).

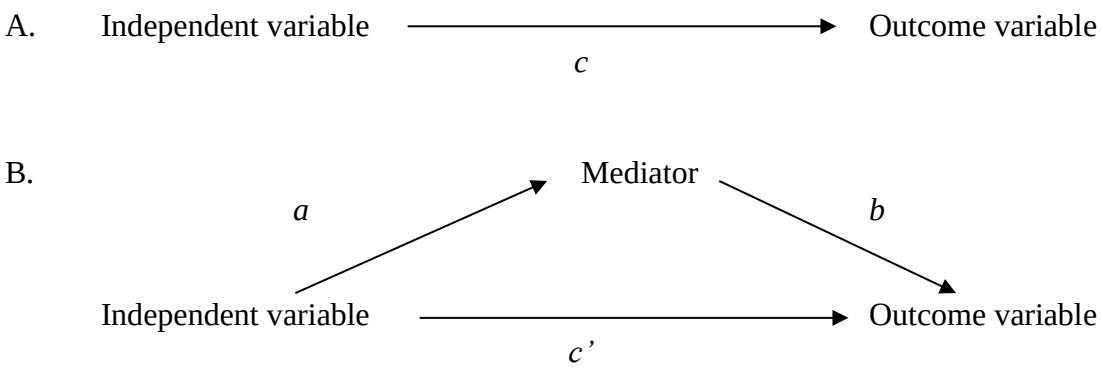

Figure 2. The total effect of the independent variable on the outcome variable (A), and a simple mediational model (B).

However, more contemporary assessments of the causal steps approach suggest that it is underpowered (Fritz & MacKinnon, 2007; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) and requires multiple predictions and tests to infer the result of interest rather than directly assessing it (Hayes, 2009). Because of this, many current researchers suggest alternate methods for conducting mediational analyses (Hayes, 2009; Holbert & Stephenson, 2003; Zhao, Lynch, & Chen, 2010). One such method is the bootstrapping procedure suggested by Hayes (2009). This design is one of the highest powered and strictest on Type I error. In addition, bootstrapping relies on fewer assumptions than other mediation procedures and is the most accessible of the high-powered methods, as Hayes (2013) has included it in a free macro download for SPSS and SAS. Therefore, this study implemented bootstrapping procedures for mediation instead of the causal steps approach implemented by Chorpita et al. (1998) and other replication studies (Affrunti & Ginsburg, 2012b; Nanda et al., 2012).

Purpose and Hypotheses

The purpose of this study was to reexamine the Chorpita, et al. (1998) mediational model using more contemporary and precise measures of the key constructs of interest, namely child anxiety, parental overcontrol, and child perceived control. The original study continues to influence research on the etiology of anxiety, but the measures and statistical methods that were used are now considered too broad and outdated. The current study substituted locus of control with PCA using the ACQ-C. The family environment measure used in the Chorpita et al. (1998) model was also replaced with the Overprotection subscale of the EMBU-C. Additionally, a more recently developed measure for anxiety symptoms—the RCADS—was used instead of the dated and

imprecise measure used in the Chorpita et al. (1998) model (Lonigan et al., 1994; Reynolds & Richmond, 1978; Stark & Laurent, 2001). This is the first study assessing the Chorpita et al. (1998) model with a child sample using these updated measures together. Finally, more contemporary statistical procedures for testing mediation were implemented, as suggested by Hayes (2009).

Based on the Chorpita et al. (1998) model and subsequent replications, the following hypotheses were therefore tested using the aforementioned updates to the methods and analyses:

1. Child perceived control of anxiety will be significantly negatively correlated with parental overprotection.
2. Child perceived control of anxiety will be significantly negatively related with child anxiety symptoms.
3. Child perceived control of anxiety will partially mediate the relationship between parental overprotection and child anxiety symptoms.

Implications

This project has implications for basic research, as well as clinical application in the prevention and treatment of child anxiety. Regarding basic research, the current study contributes to the understanding of the relationship between children's early learning environments and their cognitions. It also adds to the growing literature seeking to deductively test Barlow's (2000, 2002) triple vulnerability model. This ultimately contributes to the understanding of the etiology of anxiety.

Through its influence on basic research, the current study also has indirect implications for clinical practice. Identifying and understanding various risk and

protective factors for the development of anxiety symptoms in children guides prevention efforts, which seek to increase adaptive functioning and resilience, and identify at-risk individuals early. Clinical intervention for children who are at-risk or who are already experiencing clinically-significant symptoms could also be affected. If the hypotheses of this project are supported, then it may suggest that prevention work include interventions that educate parents on the importance of fostering children's perceived control through independent exploration and manipulation of their environment. Additionally, treatments for childhood anxiety disorders of all kinds may benefit from parenting interventions and focus on control cognitions.

Chapter Two

Methods

Participants

Two a priori power analyses were conducted to determine the appropriate sample size. First, G*Power was used for a linear multiple regression test with a medium effect size ($f^2 = .15$) and two predictors. Predicted power was .80 and α was set at .05. This yielded a suggested minimum sample size of 43. Second, Cohen's (1992) suggested sample size was used as a comparison. This source recommended a minimum sample size of 67 for the same test. With these two resources, it was decided that the preferred sample size would be 70 participants, but 50 or above would be considered sufficiently powered.

In the Chorpita et al. (1998) study, the age of participants ranged from six to fifteen years old. Because the evidence for the mediational model's applicability to adolescents is equivocal, this study focused on middle childhood and early adolescence. Therefore, the maximum participant age was set at thirteen years old—which corresponds to approximately eighth grade. To assess children who can easily complete the measures used, the minimum participant age was set at eight years old—or approximately third grade.

The non-clinical sample of participants was recruited from six local elementary and middle schools, four of which were private, while the other two were public charter schools. Data was collected from a total of 190 participants; however, 52 (27.37%) were deleted due to insufficient measure completion, which was defined as missing greater than 30% of the items on one or more of the measures included in the analyses. While estimation methods can be used for datasets that have upwards of 60% missing values

(Dong & Peng, 2013), it was decided that a more conservative missingness proportion be employed in order to minimize bias and standard error. Listwise deletion of all participants with any missing data could introduce bias due to systematic factors that affected the missingness of the data (Dong & Peng, 2013). For example, participants with increased inattention could have neglected to respond to items. Deletion of participants with any missing data could therefore mean systematic deletion of participants on the basis of inattention. Based on the exclusion criteria described above, 138 participants were left to be included in the analyses (see Table 1). The mean age for the sample was 11.09 years (*SD* = 1.75, range = 8-15), and 61.6% were female (one participant did not indicate sex).

Table 1

Demographics for Sample (n=138)

Variable	*M*	*SD*	Range	Missing%
Age	11.09	1.75	8-15	0
Number of siblings*	2.95	2.06	0-9	8.70

Ethnicity	Frequency	%
European-American	70	50.7
Mixed	33	23.9
African-American	23	16.7
Other	7	5.1
East Asian-American	2	1.4
Missing	2	1.4
South Asian-American	1	0.7

Age (in Years)	Frequency	%
8	8	5.8
9	22	15.9
10	22	15.9
11	35	25.4
12	16	11.6
13	21	15.2
14	12	8.7
15	2	1.4

*Number of siblings reported was recorded as missing for participants who reported 10 or more siblings

Measures

Written assent form. This enabled child participants to provide written assent to complete the survey packet.

Demographic information form. This form assessed demographics of the participants and their families. Items included characteristics such as age, sex, ethnicity, and occupation of parents.

Egna Minnen Beträffande Uppfostran-Child (EMBU-C; Gruner et al., 1999; Young et al., 2013). The EMBU-C is a 40-item self-report measure that is designed to assess children's perceived parenting style of their caretakers. Items are answered using the following four-point, forced-choice Likert scale: 1 (no, never), 2 (yes, but seldom), 3 (yes, often), and 4 (yes, most of the time). The EMBU-C contains four subscales: Emotional Warmth, Rejection, Overprotection, and Anxious Rearing (Young et al., 2013). For the purposes of this study the Overprotection subscale was used to measure the construct of parent overcontrol. Items on this scale are summed, and higher scores indicate greater parental overprotection. Cronbach's alpha for this subscale ranged from 0.66 to 0.81 for non-clinical samples (Markus, Lindhout, Boer, Hoogendijk, & Arrindell, 2003; Muris, Meesters, & von Brakel, 2003). Although these reliability estimates suggest possibly questionable reliability, this is the most reliable—as well as most-cited—child-reported parenting style measure currently available. These psychometric properties have been found using children as young as eight years old (Young et al., 2013).

The Overprotection subscale has been found to be significantly related to parent- and child-reported anxiety symptoms (Grüner et al., 1999; Muris et al., 2003; Young et al., 2013), which is demonstrative of convergent validity. Increases in Overprotection scores were also found to predict increases in parent-reported child anxiety and disability due to anxiety symptoms (Young et al., 2013). This lends evidence to the subscale's predictive validity.

Anxiety Control Questionnaire for Children (ACQ-C; Weems et al., 2003). This is a 30 item self-report measure that was adapted from an adult measure (Rapee et al., 1996) in order to assess children's perceived control over anxiety-provoking environmental threats, and internal emotional and behavioral responses related to anxiety (Weems et al., 2003). Items are answered using the following Likert scale: 0 (none), 1 (a little), 2 (some), 3 (a lot), or 4 (very very much). All responses are summed to produce a total score, with higher scores indicating more PCA. The measure also has two subscales— "Internal Reactions" and "External Events"—but separate analysis of these was not of relevance to the current study (Weems et al., 2003, p. 560). Cronbach's alpha for the ACQ-C is 0.93, indicating excellent internal consistency reliability (Weems et al., 2003). Weems et al. (2003) originally examined the psychometrics of the ACQ-C with participants aged 9 to 17 years old.

The ACQ-C was also found to be negatively related to LOC—as measured by the NSLOC—and negative affect—assessed using the RCMAS (Weems et al., 2003). In other words, individuals with higher ACQ-C scores had lower negative affect and more internal LOC. Child-reported *DSM-IV* anxiety and depressive symptoms—measured by the RCADS—as well as trait anxiety were also significantly correlated with the ACQ-C

in a Dutch sample of non-clinical and clinical children (Hogendoorn, Wolters, et al., 2014). This lends evidence of convergent validity for this measure.

Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2000). This is a 47-item self-report measure that was designed to assess children's symptoms of *DSM-IV* anxiety disorders and depression. Items are answered using the following Likert scale: 0 (never), 1 (sometimes), 2 (often), and 3 (always). There are six subscales which account for symptoms of SAD, SP, OCD, PD, GAD, and MDD (Chorpita et al., 2000). A measure of overall anxiety—which sums scores across the SAD, SP, OCD, PD, and GAD subscales—is also provided, as well as a total anxiety and depression score (Ebesutani et al., 2011). Internal consistency coefficients for each subscale have ranged from 0.78 to 0.85. The overall anxiety score was used to measure the construct of child anxiety symptoms for the purposes of this study. Cronbach's alpha scores for the component subscales range from 0.78 to 0.85 (Chorpita et al., 2000). The psychometrics for the RCADS were tested in a sample that ranged in age from 8 to 18 years old (Chorpita et al., 2000).

Various evidence of convergent and discriminant validity for the RCADS subscales has been found. In the initial development of the measure Chorpita et al. (2000) discovered that all of the anxiety and depression subscales had relatively large and significant relationships with negative affect—as measured by the RCMAS. They additionally found that a depression measure was related significantly to all subscales except SAD. However, the effect size for its correlation with MDD was large, while the size of its relationships with the other anxiety subscales were small to medium. Chorpita et al. (2005) found similar results using the same measures in a clinical sample and

additionally found that the RCADS subscales correlated significantly with their corresponding disorder subsection in parent- and child-reported structured clinical interviews. RCADS subscales also demonstrated non-significant correlations with the oppositional behavior subsections of the interviews.

Procedure

Data collection took place as part of a larger survey-based project called the Protective Factors for Child Anxiety Study. This study included eleven measures for the child participants to complete—including the EMBU-C, ACQ-C, and RCADS—as well as eleven measures for the parents to complete online. Prior to the start of data collection, approval was acquired by the Institutional Review Board at the University of Toledo. Local public and private elementary and middle schools were contacted for permission to conduct the study in their third, fourth, fifth, sixth, seventh, and eighth grade classrooms. When consent was obtained from all relevant faculty and administrators, parental consent forms were given to the children to take home to their parents approximately one week prior to data collection. Approximately 1,020 children across the six participating schools received them. Parent informed consent forms included information about the purpose of the study, their child's requirements to participate, confidentiality, and the potential risks and benefits of participation. The voluntary nature of participation, lack of negative consequences for not participating, and option to opt out at any point during the study were highlighted in the consent form as well. A time was then scheduled for researchers to come into the classrooms and conduct the survey. At least one graduate student, and typically one undergraduate research assistant, attended data collection sessions. During that time researchers read from a script that explained the purpose of the study and the

contents of the assent form. Assent forms were given to those children whose parents provided written consent, and time was allotted for them to ask questions about it and the study. Those who provided written assent were given the survey packets to complete.

Data collection took place with one or more classrooms of participants taking part together in a quiet, relatively undisturbed area of the school. Examples of this include a library or empty classroom. Once assent was given and packets were distributed, researchers provided verbal instructions and indicated that each measure had its own set of instructions to follow. They also remained in the room during data collection so the participants could ask questions about the meaning of words or items and take breaks if needed. There was no time limit to complete the survey packets, but the estimated time for completion of the entire packet of eleven measures was 45 minutes. The packets were counter-balanced with six different orders, meaning that the order of the measures in the packets was randomized prior to data collection. This was a preventative measure to address confounding factors, such as the effects of fatigue. Younger children (i.e., those in grades 3-5), whose reading levels were suspected to not be sufficient to complete the packets independently, were given non-counterbalanced packets. When these participants appeared to struggle with item comprehension and completion, researchers read the items aloud. After completion of every two measures read aloud, children were given an opportunity to complete a set of ten exercises (e.g., jumping jacks, sit-ups, etc.) to prevent fatigue.

Analyses

The primary aim of this study was to test the Chorpita et al. (1998) mediational model as defined by a revised and updated set of measures. Specifically, the mediational model to be tested included child PCA—as measured by the summed total ACQ-C score—acting as the mediator for parent overcontrol—here, the Overprotection subscale of the EMBU-C—and child anxiety symptoms—operationalized as the overall anxiety score of the RCADS. To conduct these analyses the SPSS macro for simple mediation was used (Preacher & Hayes, 2004), which provides output from the Baron and Kenny (1986) steps for mediation, the Sobel test, and bootstrapping procedures. The Sobel test provides a conservative estimate of the standard error for the indirect effect. Following the suggestion of Hayes (2009), a bootstrapping procedure with 5,000 samples was also used to provide a more accurate estimation of the indirect effect as well.

Chapter Three

Results

Missing Data

Following the listwise deletion procedure discussed previously (see Participants section), missing values analysis was conducted to determine whether the remaining data were missing from the sample in a random manner. Specifically, Little's (1988) missing completely at random (MCAR) test was used to examine the bias of the remaining missing values. It is believed that there are three conditions in which missing data can occur (Dong & Peng, 2013; Little, 1988; Rubin, 1976). The first—called missing not at random (MNAR)—occurs when the probability of missingness for a given item is dependent on the item itself. Dong and Peng (2013) illustrate this well with an example regarding income: "Missing data on the income variable is likely to be MNAR if high income earners are more inclined to withhold this information than average—or low—income earners" (p. 3).

The second condition—missing at random (MAR)—occurs when the probability of missingness is dependent on another observable value. For example: "students [in a calculus course] who scored low on the pre-test are more likely to drop out of the course, hence, their scores on the post-test are missing…In other words, for students who have the same pre-test score, the probability of their missing the post-test is random" (Dong & Peng, 2013, p. 2). Missingness of the post-test scores, thus, would be considered MAR because the mechanism determining missingness is the observed pre-test scores.

The final condition—labeled missing completely at random (MCAR)—occurs when the probability of missingness is dependent on neither the missing or observed

values (Dong & Peng, 2013). If the previous calculus example is revisited, missing post-test scores would be considered MCAR if its probability of missingness was unrelated to either the pre-test scores or the post-test scores themselves. When data is MCAR, it is suggested that ignoring missing values is unbiased (Dong & Peng, 2013; Little, 1988; Rubin, 1976).

In the present sample, results of Little's MCAR test suggested that the data remaining following the listwise deletion procedures described above can be considered MCAR ($\chi^2(6097) = 6191.41$, $p = .20$). Although this suggests that bias was not incorporated into the data because of missing values, estimation procedures were nonetheless implemented because missing data can still decrease power and increase standard error of analyses (Dong & Peng, 2013; Peng, Harwell, Liou, & Ehman, 2006). Estimation was accomplished using the expectation-maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977) available in the Missing Values Analysis add-on for SPSS. This method is a maximization-likelihood method that directly estimates parameters of a dataset by alternating between two steps. The first—called the expectation (E) step— "calculates the expectation of the log-likelihood function of the parameters, given data." The second—the maximization (M) step— "maximizes the expectation of the complete data log likelihood from the previous E step" (Dong & Peng, 2013, p. 9).

Descriptive Statistics

There were no significant outliers for any of the three measures of interest. Additionally, responses on all three measures can be considered normally distributed (see Table 2 for more descriptive information).

Table 2

Descriptive Statistics for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 138)

Variable	*M*	*SD*	Range	Skew	Kurtosis
RCADS Anx	35.66	16.37	0-76	.09	-.45
ACQ-C Tot	64.34	21.29	8-114	.09	-.25
EMBU-C O	25.55	5.06	10-37	-.33	.08

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale total anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child overprotection subscale score

Mean Comparisons

Between groups analyses were conducted to determine whether the key demographic variables of sex and age were related to different responses on the measures of interest (Table 3). Participant sex has been shown to relate differently to child-reported anxiety symptoms (Higa-McMillan et al., 2014). Specifically, females tend to report higher rates of anxiety symptoms than males (e.g., Auerbach, Richardt, Kertz, & Eberhart, 2012; Chorpita et al., 2000; Derdikman-Eiron et al., 2011; Wren et al., 2007), which may affect the relationship between the measures of interest. As previously discussed, age was initially predicted to influence the relationship between cognitive vulnerabilities and anxiety symptoms, such that cognitive factors would initially act as mediators between environmental factors and anxiety, but would eventually moderate the

relationship during adolescence (Chorpita & Barlow, 1998). However, more recent findings relevant to this model have not substantiated this prediction (Ballash et al., 2006; B. Gallagher & Cartwright-Hatton, 2008), and it has instead been found that the mediational model continues into adolescence and young adulthood. Because of the discrepancy between the initial prediction and subsequent findings, it is of interest in the current study to investigate whether these findings are replicated in the current sample.

On average, male participants (M = 25.86, SE = .65) had slightly higher Overprotection scores on the EMBU-C than female participants (M = 25.38, SE = .57), but this difference (-.48) was not significant ($t(135) = -.54$, $p = .59$). Female participants, on the other hand, had higher RCADS Total Anxiety scores than males (M = 32.64, SE = 1.97), but again this difference (4.97) was not significant ($t(135) = 1.73$, $p = .09$). Male participants (M = 69.74, SE = 3.12) had higher Total scores on the ACQ-C than female participants (M = 60.99, SE = 1.23), and this difference (-8.75) was significant ($t(135) = -2.36$, $p = .02$) and represents a small-to-medium-sized effect ($d = .41$). Because a significant sex difference was observed between groups with respect to perceived control of anxiety (PCA), the analyses were conducted for not only the total sample, but also for male and female participants separately.

Consistent with previous suggestions that Chorpita and Barlow's (1998) model of anxiety might operate differently over the course of development, participants in this sample were divided into two age groups for mean comparison analysis. The younger group was comprised of participants aged 11 and younger, while the older group included those aged 12 and older. On average, older participants (M = 67.19, SE = 2.97) had higher Total scores on the ACQ-C than younger participants (M = 62.67, SE = 2.28), but

this difference (4.51) was not significant ($t(136) = 1.20$, $p = .54$). Older children (M = 36.76, SE = 2.52) also had slightly higher RCADS Total Anxiety scores than younger children (M = 35.01, SE = 1.65), but again this difference (2.89) was not significant ($t(136) = 0.61$, $p = .54$). On the EMBU-C Overprotection subscale, younger participants (M = 25.80, SE = 5.04) had slightly higher scores than older participants (M = 25.14, SE = 5.10), but this difference (-0.66) was also not significant ($t(136) = -0.73$, $p = .46$). Although no statistically significant age differences were observed in this sample on the outcome and process variables of interest, subsequent analyses were conducted for the full sample as well as for the younger and older samples separately in order to evaluate whether previous hypotheses about change over development were supported here.

Table 3

Between Groups Differences for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores Based on Participant Sex and Age

Variable	*t*	*p*	Mean Difference
RCADS Anx			
Sex	1.73	.09	5.00
Age	0.61	.54	2.89
ACQ-C Tot			
Sex	-2.36	.02	-8.75
Age	1.20	.23	4.51
EMBU-C O			
Sex	-0.54	.59	-0.48
Age	-0.73	.46	-0.66

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale total anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score

Reliability

Internal consistency reliability coefficients for the measures of interest are presented in Table 4. Excellent reliability scores were demonstrated for the total anxiety subscale and total scale score of the RCADS and ACQ-C, respectively. The Overprotection subscale of the EMBU-C had a questionable Cronbach's alpha score,

however. Despite this, the internal consistency reliability score observed in this study is comparable to the range of 0.66 to 0.81 found previously for the Overprotection subscale (Markus et al., 2003; Muris et al., 2003). Because the EMBU-C was the last measure in the non-counterbalanced survey packets the internal consistency reliability of the Overprotection subscale was also assessed separately for participants that received non-counterbalanced (i.e., those in grades 3-5) and counterbalanced (i.e., grades 6-8) packets. Results indicated that there were no reliability differences between the counterbalanced (α = 0.60) and non-counterbalanced (α = 0.61) groups. This suggests that there was not a significant effect of fatigue on EMBU-C responses for the non-counterbalanced group.

Table 4

Internal Consistency Reliability for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores

Variable	Cronbach's α
RCADS Anx	.91
ACQ-C Tot	.92
EMBU-C O	.62

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale total anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child overprotection subscale score

Zero-Order Correlations

Zero-order correlations were calculated to test Hypotheses 1 and 2 (see Purpose and Hypotheses section). Because the data met the assumptions of parametric tests, Pearson product-moment correlations were used (Table 5). Results indicate that child PCA was significantly related to parent overprotection (r = .18, p = .04) and child anxiety symptoms (r = -.30, p < .001). These correlations represent small- and medium-sized effects, respectively (Cohen, 1992). However, the relationship between PCA and parent overprotection is in the direction opposite of that predicted. Hypothesis 2 (child PCA will be significantly negatively related with child anxiety symptoms) is, therefore, supported by these results, whereas Hypothesis 1 (child PCA will be significantly negatively correlated with parental overprotection) is not.

Table 5

Correlation Matrix for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 138)

	RCADS Anx	ACQ-C Tot	EMBU-C O
RCADS Anx			
ACQ-C Tot	-.30**		
EMBU-C O	.14	.18*	

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale Total Anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score; *p < .05; **p < .001

Intercorrelations for male and female participant groups were additionally conducted for the primary constructs (Tables 6 and 7), as the mean difference between these groups on the ACQ-C was significant (see Mean Comparisons section). Results for the Pearson product-moment correlations indicate that, for females, child PCA was significantly related to parent overprotection (r = .26, p = .02) and child anxiety symptoms (r = -.27, p = .01). These correlations represent medium-sized effects (Cohen, 1992). The relationships found here were similar to those found in the total sample (Table 5). For males, child PCA was significantly related to child anxiety symptoms (r = -.31, p = .03), which represents a medium-sized effect (Cohen, 1992); however, unlike the female and total samples, PCA was not significantly related to parent overprotection.

Table 6

Female Sample Correlation Matrix for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 85)

	RCADS Anx	ACQ-C Tot	EMBU-C O
RCADS Anx			
ACQ-C Tot	-.27**		
EMBU-C O	.10	.26*	

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale Total Anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score; *p < .05; **p < .001

Table 7

Male Sample Correlation Matrix for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 52)

	RCADS Anx	ACQ-C Tot	EMBU-C O
RCADS Anx			
ACQ-C Tot	-.31*		
EMBU-C O	.27	.04	

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale Total Anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score; *$p < .05$

Intercorrelations for younger and older participant groups were additionally conducted for the primary constructs (Tables 8 and 9), to test predictions made by Chorpita and Barlow (1998) regarding the effect of development on the model (see Mean Comparisons section). Results for the Pearson product-moment correlations indicate that, for younger children, child PCA was significantly related to parent overprotection (r = .18, p = .04) and child anxiety symptoms (r = -.32, p = .002). These correlations represent small- and medium-sized effects, respectively (Cohen, 1992). The relationships found here were similar to those found in the total sample (Table 5). For older participants, child PCA was significantly related to child anxiety symptoms (r = -.29, p = .04), which represents a medium effect size (Cohen, 1992); however, unlike the younger and total samples, PCA was not significantly related to parent overprotection.

Table 8

Younger Sample Correlation Matrix for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 87)

	RCADS Anx	ACQ-C Tot	EMBU-C O
RCADS Anx			
ACQ-C Tot	-.32**		
EMBU-C O	.14	.18*	

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale Total Anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score; *$p < .05$; **$p < .001$

Table 9

Older Sample Correlation Matrix for the RCADS Total Anxiety, ACQ-C Total, and EMBU-C Overprotection Scores (n = 51)

	RCADS Anx	ACQ-C Tot	EMBU-C O
RCADS Anx			
ACQ-C Tot	-.29*		
EMBU-C O	.16	.12	

Note: RCADS Anx = Revised Children's Anxiety and Depression Scale Total Anxiety score; ACQ-C Tot = Anxiety Control Questionnaire for Children total scale score; EMBU-C O = Modified Egna Minnen Beträffande Uppfostran-Child Overprotection subscale score; *$p < .05$

Mediation Analyses

Mediation analyses were conducted using Model 4 in the PROCESS macro for SPSS (Hayes, 2013) with 5,000 bootstrapped samples. Parent overprotection was entered as the independent (or predictor) variable, while child PCA and anxiety symptoms were keyed in as the mediator and dependent (or outcome) variables, respectively. Results indicate that there was a significant indirect effect of parent overprotection and child anxiety through child PCA (b = -.20, BCa CI [-.45, -.02]). This represents a small effect size (K^2 = .07, 95% BCa CI [.01, .15]). These results support predictions made in Hypothesis 3 (Figure 3).

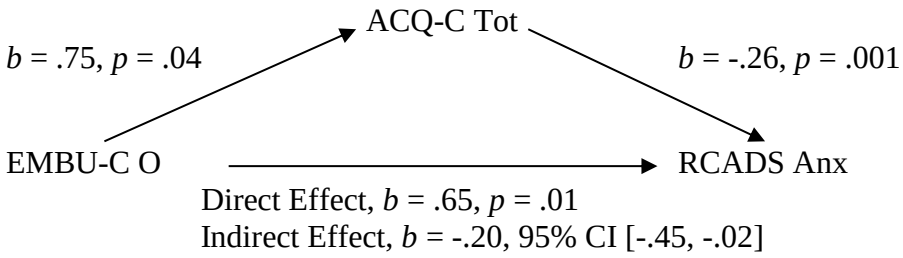

Figure 3. Model of parent overprotection as a predictor of child anxiety, mediated by child perceived control of anxiety. The confidence interval for the indirect effect is BCa bootstrapped CI based on 5,000 samples.

Mediation Analyses for Demographic Groups

The sample was again separated into groups based on demographic variables of interest—participant sex and age—to assess whether they had any effect on the mediational model (Figure 3). Sex was analyzed because of the significant difference on scores for the mediational variable—child PCA—for males and females (see Zero-Order Correlations section). While no significant differences were found for participant age on

the variables of interest, meditational analyses were conducted for each age group to evaluate whether child PCA continues to mediate the relationship between parent overprotection and child anxiety symptoms into adulthood, as previous empirical investigations have suggested (Ballash et al., 2006; B. Gallagher & Cartwright-Hatton, 2008).

Participant sex. Because categorical variables—like sex—cannot be entered as moderators in the PROCESS macro, the sample was split into male and female participant groups and run separately through the same mediational model described previously. For females, there was a significant indirect effect of parent overprotection and child anxiety through child PCA (b = -.27, BCa CI [-.66, -.04]). This represents a medium-sized effect (K^2 = .085, 95% BCa CI [.01, .20]; Figure 4). For males, there was not a significant indirect effect (b = -.04, BCa CI [-.40, .23]; Figure 5).

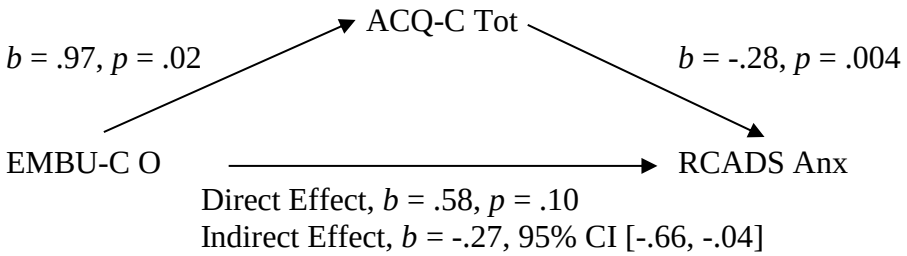

Figure 4. Female sample (n = 85) model of parent overprotection as a predictor of child anxiety, mediated by child perceived control of anxiety. The confidence interval for the indirect effect is BCa bootstrapped CI based on 5,000 samples.

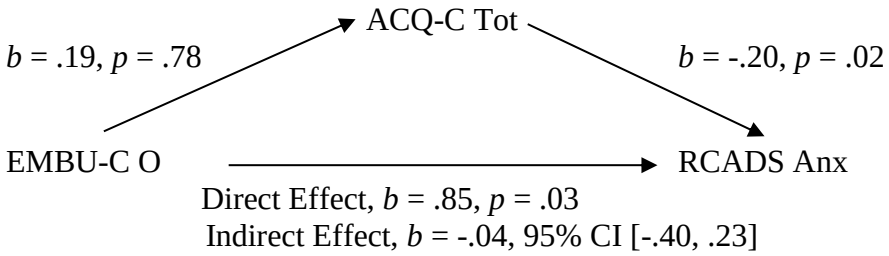

Figure 5. Male sample (n = 52) model of parent overprotection as a predictor of child anxiety, mediated by child perceived control of anxiety. The confidence interval for the indirect effect is BCa bootstrapped CI based on 5,000 samples.

Participant age. Moderated mediation analyses were conducted using Model 7 in the PROCESS macro for SPSS (Hayes, 2013) with 5,000 bootstrapped samples. Parent overprotection was entered as the independent variable, while child PCA and anxiety symptoms were keyed in as the mediator and outcome variables, respectively. Participant age was included as the moderator variable (See Figure 6 for information regarding direct effects). There was a significant indirect effect of parent overprotection and child anxiety through child PCA at both low (b = -.36, 95% CI [-.74, -.11]) and medium (b = -.24, 95% CI [-.50, -.05]) levels of the moderator, but not for high (b = -.12, 95% CI [-.43, .13]). However, the effect of the interaction of parent overprotection and participant age on child PCA was not significant (b = -.26, p = .18; Table 10), nor was the index of moderated mediation (b = .07, 95% CI [-.03, .18]).

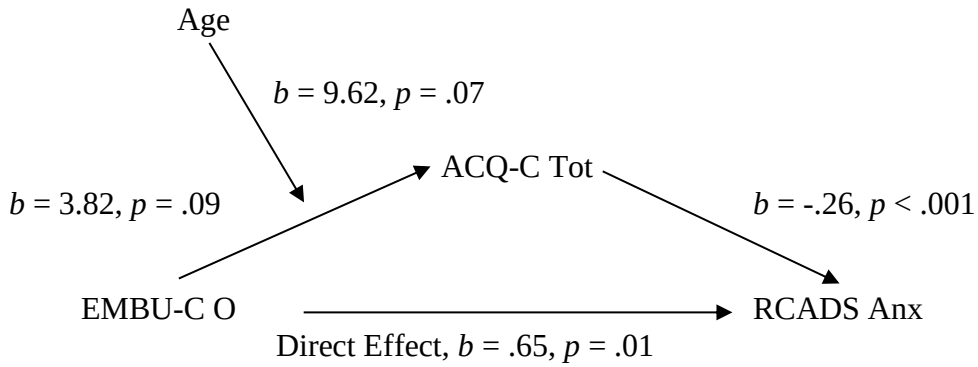

Figure 6. Model of parent overprotection as a predictor of child anxiety, mediated by child perceived control of anxiety. Participant age is entered as a moderator of parent overprotection and child PC of anxiety.

Table 10

Linear Model Predictors of Perceived Control of Anxiety

	b	*SE B*	*t*	*p*
Constant	-65.98	60.46	-1.09	.28
	[-185.55, 53.60]			
Participant Age	9.62	5.26	1.83	.07
	[-.79, 20.02]			
Parent Overprotection	3.82	2.24	1.70	.09
	[-.62, 8.26]			
Age x Overprotection	-.26	.20	-1.33	.18
	[-.65, .13]			

Note: * $p < .05$

Chapter Four

Discussion

Purpose Revisited

The purpose of this study was to test a key etiological model in the child anxiety literature (Chorpita et al., 1998) using more precise and updated measures and statistical methods than were previously used. Specifically, the locus of control measure was replaced with a measure of perceived control of anxiety (PCA); an overprotection measure was substituted for the family environment scale used previously; and an updated anxiety symptoms measure was utilized instead of the more dated and less construct-specific measure used in the original study. This study also used updated mediation analyses procedures to ensure that the analyses were appropriately powered.

Summary of Findings

The results will be presented here per each of the three predictions made. Follow-up analyses regarding participant sex and age will be subsequently presented and discussed.

Child perceived control of anxiety will be significantly negatively correlated with parental overprotection. This hypothesis was not supported. Despite these constructs being significantly related to one another, the correlation was positive, with high PCA associated with lower levels of parental overprotection, which was the opposite direction than predicted. High PCA is considered a protective factor for child anxiety, as

> nonpathological anxiety in individuals who do not have anxiety disorders is differentiated, in part, from pathological anxiety in that the latter is characterized not only by heightened levels of anxiety in response to threatening situations but

> also by the belief that threatening events are uncontrollable. (Weems et al., 2003, p. 558)

High parental overprotection, on the other hand, is thought to be a risk factor for child anxiety, as it prevents children from independently exploring their environments early in development, thereby preventing the development of a sense of control over environmental events (Chorpita & Barlow, 1998). High levels of parental overprotection are, therefore, assumed to be associated with lower levels of PCA, such that PCA was predicted to be negatively correlated with parental overprotection in this study. What was instead found was that participants with elevated parental overprotection tended to have elevated PCA.

One potential explanation for this is that the psychometric properties of the ACQ-C and/or EMBU-C are flawed. However, in examining this hypothesis, it was observed that the ACQ-C had an excellent internal consistency reliability in the current study, and that the internal consistency estimates observed here are comparable to findings in the original scale development study (Weems et al., 2003). The ACQ-C was also correlated with the RCADS Total Anxiety score in the direction predicted. This relationship is consistent with that found in the initial psychometrics paper between the ACQ-C and a measure of negative affect—the RCMAS (Weems et al., 2003), as well as subsequent studies using both the ACQ-C and RCADS Total Anxiety score (Alfano, Zakem, Costa, Taylor, & Weems, 2009; Weems, Costa, Watts, Taylor, & Cannon, 2007).

Although the ACQ-C was reliable, correlated with anxiety symptoms in the predicted direction, and was normally distributed in this sample, the scores were much lower than those found by Weems et al. (2003) in their non-referred sample. In fact, the

ACQ-C scores observed here were closer to that of Weems' (2003) sample of clinically anxious children, suggesting that the child participants in this study reported markedly lower levels of perceived control over their anxiety than the general population sample used in the validation study of the ACQ-C. The current sample scores were comparable to those in one subsequent study using the ACQ-C in a non-referred sample (Hogendoorn, Walters, et al., 2014); however, other studies have higher mean scores compared to that of this sample (Alfano et al., 2009; Cannon & Weems, 2010; Hogendoorn et al., 2012; McGinn, Jerome, & Nooner, 2010; Scott & Weems, 2014; Weems et al., 2007).

This suggests that PCA scores in the current study were lower than what is expected in a school-based sample of non-referred children, and the reduced range could have affected its relationship with the EMBU-C Overprotection subscale. However, it should be noted that the correlation between the ACQ-C and the RCADS Total Anxiety score was significant and negative—as predicted—and the RCADS score in this sample was similar to that found in the Chorpita, Yim, Moffitt, Umemoto, and Francis (2000) school sample of similar-aged children. If the reduced range of the ACQ-C were to affect its relationship with other measures used, it would likely have affected its relationship with the RCADS as well.

Although the EMBU-C demonstrated questionable internal consistency reliability in this sample, it was comparable to that found in previous studies (Muris et al., 2003; Young et al., 2013). Inconsistent with previous findings, however, the Overprotection scale did not demonstrate a significant relationship to child anxiety symptoms. Significant positive correlations between this subscale and various child-reported

measures of child anxiety—including the SCAS (from which the RCADS was developed), STAIC, Screen for Child Anxiety-Related Emotional Disorders, and the Penn State Worry Questionnaire—have been demonstrated in previous work (Affrunti & Ginsburg, 2012a, 2012b; Markus et al., 2003; Muris et al., 2003; Young et al., 2013).

Other studies have found that the Overprotection subscale is not positively related to measures of child anxiety and negative affect. For example, Platt, Williams, and Ginsburg (2016) did not find a relationship between the subscale and anxiety symptom severity—as assessed by the Anxiety Disorders Interview Schedule for Children-Fourth Edition (ADIS-IV C/P; Silverman & Albano, 1996). Also using the ADIS-IV C/P, van Gastel, Legerstee, and Ferdinand (2009) found that parent overprotection was negatively associated with presence (or absence) of an anxiety diagnosis in child participants. Niditch and Varela (2012) concluded from their study that the Overprotection subscale was unrelated to negative affectivity as measured by the RCMAS. In the current sample the subscale was similarly unrelated to the RCADS Total scale score, which is a measure of overall internalizing symptoms.

In the van Gastel et al. (2009) study the authors gave two explanations for the negative relationship between child anxiety and the EMBU-C Overprotection subscale. First, they suggested that overprotection and parenting style more generally might be related to overall psychopathology instead of anxiety disorders specifically. They suggested that

> comorbid other problems might make some researchers find a positive association between parenting and child anxiety. Or, the other way around, because we

> excluded children with externalizing comorbidity, associations may not have been found. (van Gastel et al., 2009, p. 51)

However, the results of the current study and that of Niditch and Varela (2012) suggest that internalizing problems more generally appear to have an uncertain relationship with the Overprotection subscale of the EMBU-C. If overprotective parenting was more closely associated with general psychopathology, then it should display some relation to general measures of internalizing symptoms.

Second, van Gastel et al. (2009) suggested that anxious and non-anxious children may perceive parenting style differently, postulating that "'overprotection' may comprise the type of extra attention and guidance anxious children may need to deal with difficult situations" (p. 51). Because the current study used only child-reported measures it cannot be determined whether participants' perceptions reflect actual parenting behavior. Future studies could assess this suggestion by comparing behavioral measures of parent overprotection (e.g., Hudson & Rapee, 2001; Murray et al., 2012; Waite & Creswell, 2015) and children's perceptions of parenting to determine whether a perceptual difference exists between anxious and non-anxious children.

Another explanation is that previous findings were not replicated as a function of the current study using different measurement tools and methods. This is the first time that the EMBU-C and ACQ-C have been used and compared in the same study. Although they were hypothesized to be negatively correlated at a theoretical level, no application evidence exists to corroborate this prediction. Niditch and Varela (2012) did examine the relationship between maternal and paternal overprotection—using the EMBU-C—and emotional self-efficacy—which is essentially a measure of perceived control of negative

emotions. They found no relationship between either maternal or paternal overprotection and emotional self-efficacy. Although this study used a more general measure of perceived control of negative emotions, it suggests that the EMBU-C may relate inconsistently to measures like PCA. Further study is needed to determine whether these findings are supported.

Child perceived control of anxiety will be significantly negatively related to child anxiety symptoms. This prediction was supported, as participants with high levels of PCA tended to have lower levels of reported anxiety symptoms. These findings are similar to those found in previous studies in which high ACQ-C scores were related to low scores on measures of anxiety and negative affect, including the RCADS, RCMAS, and STAIC (Hogendoorn, Wolters, et al., 2014; Weems et al., 2003). This negative relationship is also found in adult samples (Ballash et al., 2006; Rapee et al., 1996). A meta-analysis by M. Gallagher et al. (2014) suggested that perceived control and anxiety measures displayed a significant negative relationship across 51 studies using both child and adult participants. The mean effect size across these studies was large. Overall there appears to be great support for a strong negative relationship between perceived control and anxiety, and results of this study support this conclusion.

Child perceived control of anxiety will partially mediate the relationship between parental overprotection and child anxiety symptoms. This prediction was partially supported. The indirect effect of this relationship mediated by child PCA was significant. This indicates that parent overprotection predicts child PCA, which in turn predicts levels of child anxiety symptoms. However, the direct effect of the association between parent overprotection and child anxiety symptoms was also significant,

suggesting that parent overprotection directly predicts child anxiety symptoms. Thus, PCA partially mediates this association with a small effect size. Because the correlation between parent overprotection and child PCA was in the opposite direction than predicted, however, this hypothesis was not completely supported.

Although this was the first study assessing the Chorpita et al. (1998) model using these particular measures and methods, these findings are comparable to those of previous studies assessing the relationships between parental overcontrol/overprotection, child control cognitions, and child anxiety. In two separate studies Affrunti and Ginsburg (2012a, 2012b) found that measures of child perceived competence and interpretation bias partially mediate the relationship between parental overprotection—as measured by the EMBU-C Overprotection subscale—and child anxiety symptoms. Nanda et al. (2012) found that child locus of control fully mediated the relationship between parent psychological control and child anxiety symptoms. However, in all of these studies, the parental control and child control cognition variables were related in the predicted direction. It is possible that the variables of interest related differently in this study because of the differences in sample demographics and measurement. Perhaps parent overprotection was perceived as protective or positive by the participants in the current sample. Future research using similar methods and more diverse samples is needed to assess this possibility.

Analysis of sex differences in the relationships between variables of interest. Male and female participants did not significantly differ in their scores for parent overprotection or child anxiety symptoms; however, males had significantly greater PCA than females. In previous studies the results of sex differences in PCA have been mixed.

Weems et al. (2003) and Hogendoorn, Wolters, et al. (2014) did not find a significant difference in scores on the ACQ-C between male and female participants, and Cannon and Weems (2010) concluded that sex does not moderate the relationship between PCA and anxiety symptoms in children. However, other studies have found that females have significantly lower PCA than males (Frala, Leen-Feldner, Blumenthal, & Barreto, 2010; Pereira, Barros, & Mendonça, 2012; Weems et al., 2007). When examining zero-order correlations in the female sample, the variables of interest were related to one another similarly to how they were in the total sample. For males, however, there was no significant relationship between parent overprotection and child PCA.

For females, the direct effect of parent overprotection on child anxiety symptoms was not significant, meaning that overprotection does not directly predict child anxiety symptoms. On the other hand, the indirect effect was significant, as parent overprotection was predictive of child PCA, which in turn predicted child anxiety symptoms. This suggests that there was a full mediation in the female sample. It should be noted, however, that parent overprotection and child PCA were still correlated in the opposite direction than predicted for the female participants. For males, neither the direct nor indirect effects of the mediational model were significant, in part because the predictor—parent overprotection—and the mediator—child PCA—were unrelated in this participant group.

The gender differences in the relationships among the variables of interest suggest that the mediational model may not be equally explanatory for the development of child anxiety in both males and females. Specifically, parent overprotection was unrelated to child PCA for male participants, which implies that control cognitions associated with

anxiety-related events and reactions might not develop from overcontrol in the early developmental period for males. Prior research does not suggest that this is the case, however. Affrunti and Ginsburg (2012b), for example, found no differences in the mediational relationship between maternal overprotection, child perceived competence, and child anxiety. Nanda et al. (2012) additionally found no gender differences in mean comparisons of parent psychological control, child locus of control, and child anxiety, suggesting that gender did not moderate the mediational relationship in their sample. Thus, the gender difference found in the current study may have been related to the overall unusual relationship between the EMBU-C Overprotection subscale, and the ACQ-C; however, future studies should assess sex differences to explore this further.

Analysis of developmental differences in the relationships between variables of interest. Participants aged between 8- and 11-years-old—designated the younger group—did not differ with participants aged between 12- and 15-years-old—the older group—on their responses for any of the variables of interest. Despite this, intercorrelations and mediational analyses were conducted separately for each age group because developmental differences in the Chorpita et al. (1998) model were integral to its initial conceptualization (Chorpita & Barlow, 1998). Variables of interest were related similarly in the younger and total samples. Like the male participant group, child PCA was not significantly related to parent overprotection for older participants.

Chorpita and Barlow (1998) predicted that control in the environment would have a decreased effect on control cognitions over the course of development. In adolescence it was theorized that control cognitions would stabilize and begin to moderate the relationship between overcontrol and anxiety symptoms. Thus, age would be predicted to

moderate the relationship between overprotection and PCA. However, the results of this study do not support this, as it was found that the relationship between parent overprotection and child PCA does not vary with age of participant. Studies assessing the Chorpita et al. (1998) model in adolescents and young adults also oppose the prediction that age affects the relationship between control in the environment and control-related cognitions (Ballash et al., 2006; B. Gallagher & Cartwright-Hatton, 2008). Taken together, these findings suggest that parental overprotection continues to directly influence an individual's PCA into adolescence, and may continue to do so well into adulthood.

Strengths and Limitations

This study has several strengths of note. First, the sample size used was more than adequate to test the study's predictions. As discussed previously, between 50 and 70 participants was considered an acceptable sample size, and the sample size used in analyses was 138. Second the sample was ethnically diverse, with European-Americans consisting of only half the sample. This is contrasted to the Chorpita et al. (1998) study, in which their sample was 94.6% European-American. Finally, this study allowed for the opportunity to test the Chorpita et al. (1998) model using more precise and updated measures and methods. Thus, hypotheses regarding the general psychological component of the triple vulnerability model (Barlow, 2000) could be directly assessed, and power of statistical analyses would be maintained.

While there are several strengths, the current study has several limitations of note as well. First it relied on solely child self-report. While children in this age range have been found to be reliable in reporting of their own internal experiences (e.g., Chorpita et

al., 2000; Michael & Merrell, 1998), it is considered best practice to include multiple informant reports when assessing child psychopathology, as it provides incremental validity (Achenbach, McConaughy, & Howell, 1987; De Los Reyes et al., 2015). Reliance on a single informant also introduces the potential for reporter bias, meaning that answering styles may be influenced by factors such as social desirability and item comprehension (De Los Reyes et al., 2015).

In addition, use of a child-reported measure of parenting style—the EMBU-C—may have incorporated some degree of bias into the results. Children's perceptions of parenting may be unrelated to parents' perceptions of their own behaviors or objective measures of parenting behaviors (van Gastel et al., 2009). Scores on this measure may therefore be influenced by other confounding factors—such as child anxiety—that may influence the child's perception of their parents' behaviors (Affrunti & Ginsburg, 2012b; van Gastel et al., 2009).

More generally, the reliance on informant-report rating scales for measurement of all variables implies that associations between the variables of interest may have been artificially inflated by common method variance, which is defined as "variance that is attributed to measurement method rather than to the constructs the measures represent" (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003, p. 879). Thus, it is suggested that future research incorporate multiple-informant report (e.g., parents, teachers, clinicians), as well as multiple-method measurement. This could include the use of structured interviews for assessment of child anxiety symptomatology (e.g., the ADIS-IV C/P; Silverman & Albano, 1996), or behavioral observation paradigms for assessment of parental

overprotection (e.g., Hudson & Rapee, 2001; Murray et al., 2012; Waite & Creswell, 2015).

This study was also cross-sectional, so causal relationships cannot be assessed from the findings. Barlow's (2000) prediction was that overcontrolling parenting early in life caused the development of low PCA later on, which in turn contributed to the development of anxiety symptoms. However, the current findings cannot directly speak to this directional hypothesis. It is possible that anxious children perceive their control over anxiety-related events and reactions to be lower than non-anxious children. Anxious children may also perceive their parents' behavior differently than non-anxious children. Parents may also modify their behavior in response to their child's level of anxiety.

It is recommended that future studies use longitudinal designs that follow children from toddlerhood to adolescence or adulthood in order to test these causal relationships. Bosquet and Egeland (2006), for example, followed a cohort of children from infancy through late adolescence to assess the development and maintenance of anxiety. One relevant finding from this study was that participants' social-emotional competence and work style—together referred to as "developmental competence"—assessed in kindergarten and first grade predicted anxiety symptoms in preadolescence. Similar studies should be conducted using measures of parent overprotection and child PCA.

Another limitation of this study was that the sample was drawn exclusively from private religiously-affiliated schools and public charter schools. While socioeconomic status (SES) was not directly assessed in this study, it is possible that the sample's mean SES was not representative of the population from which it was drawn. Future studies should include participants from local public school districts as well.

Implications

As discussed previously, this project has implications for both basic research and clinical application. Regarding basic research, the findings suggest that PCA is predictive of anxiety symptoms in school-aged children. This supports the theory that PCA—and control cognitions more generally—is a risk factor for the development of child anxiety. There is also some evidence from this study that PCA acts as a mediator between parent overprotection and child anxiety; however, future research should continue to assess the relationship between the EMBU-C Overprotection subscale and various measures of control-related cognitions, including the ACQ-C. Research assessing this mediational model should also look to behavioral measures and parent-report of overprotection so that perceived and actual parenting behaviors can be compared for anxious and non-anxious youth. Finally, longitudinal study of the Chorpita et al. (1998) model would allow predictions of causal relationships to be tested.

The results of this study certainly support targeting PCA in prevention and treatment of child anxiety. As a risk factor for the development of anxiety, prevention programming could use PCA as a measure to identify children at risk for anxiety problems, and as a mechanism of change by which to protect these children from symptom development and functional impairment.

In terms of treatment for anxiety disorders, Hogendoorn, Prins, et al. (2014) assessed PCA as a mechanism of change in a 12-week CBT treatment for various anxiety disorders in youth. Results of this longitudinal study suggested that anxiety symptoms and PCA had a reciprocal relationship. That is, increases in PCA predicted decreases in child anxiety symptoms, and decreases in symptoms predicted increases in PCA. The

authors explained this finding by suggesting that increases in perceived control "could also be a consequence of mastery experiences in successful coping and exposure exercises and follow upon a decrease in anxiety" (p. 497). Thus, active components of anxiety treatments, like exposure, may increase PCA as well as decrease symptoms of anxiety. Continued longitudinal research is needed to determine the temporal relationships between treatment components, symptoms, and control-related cognitions.

References

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review, 96*(2), 358-372.

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*(1), 49-74.

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational specificity. *Psychological Bulletin, 101*(2), 213-232.

Affrunti, N. W., & Ginsburg, G. S. (2012a). Exploring parental predictors of child anxiety: The mediating role of child interpretation bias. *Child & Youth Care Forum, 41*(6), 517-527.

Affrunti, N. W., & Ginsburg, G. S. (2012b). Maternal overcontrol and child anxiety: The mediating role of perceived competence. *Child Psychiatry & Human Development, 43*(1), 102-112.

Alfano, C. A., Zakem, A. H., Costa, N. M., Taylor, L. K., & Weems, C. F. (2009). Sleep problems and their relation to cognitive factors, anxiety, and depressive symptoms in children and adolescents. *Depression and Anxiety, 26*(6), 503-512.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Auerbach, R. P., Richardt, S., Kertz, S., & Eberhart, N. K. (2012). Cognitive vulnerability, stress generation, and anxiety: Symptom clusters and gender differences. *International Journal of Cognitive Therapy, 5*(1), 50-66.

Ballash, N. G., Pemble, M. K., Usui, W. M., Buckley, A. F., & Woodruff-Borden, J. (2006). Family functioning, perceived control, and anxiety: A mediational model. *Journal of Anxiety Disorders, 20*(4), 486-497.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Barlow, D. H. (1988). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.

Barlow, D. H. (2000). Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *American Psychologist, 55*(11), 1247-1263.

Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic* (2nd ed.). New York: Guilford Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Beesdo, K., Pine, D. S., Lieb, R., & Wittchen, H. U. (2010). Incidence and risk patterns of anxiety and depressive disorders and categorization of generalized anxiety disorder. *Archives of General Psychiatry, 67*(1), 47-57.

Berrenberg, J. L. (1987). The Belief in Personal Control Scale: A measure of God-mediated and exaggerated control. *Journal of Personality Assessment, 51*(2), 194-206.

Biederman, J., Rosenbaum, J. F., Hirshfeld, D. R., Faraone, S. V., Bolduc, E. A., Gersten, M., . . . Reznick, J. S. (1990). Psychiatric correlates of behavioral inhibition in

young children of parents with and without psychiatric disorders. *Archives of General Psychiatry, 47*(1), 21-26.

Bodden, D. H., Dirksen, C. D., & Bögels, S. M. (2008). Societal burden of clinically anxious youth referred for treatment: A cost-of-illness study. *Journal of Abnormal Child Psychology, 36*(4), 487-497.

Bosquet, M., & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Development and Psychopathology, 18*(2), 517-550.

Brown, T. A., White, K. S., Forsyth, J. P., & Barlow, D. H. (2004). The structure of perceived emotional control: Psychometric properties of a revised Anxiety Control Questionnaire. *Behavior Therapy, 35*(1), 75-99.

Cannon, M. F., & Weems, C. F. (2010). Cognitive biases in childhood anxiety disorders: Do interpretive and judgment biases distinguish anxious youth from their non-anxious peers? *Journal of Anxiety Disorders, 24*(7), 751-758.

Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical Psychology Review, 26*(7), 817-833.

Castro, J., Toro, J., Van der Ende, J., & Arrindell, W. A. (1993). Exploring the feasibility of assessing perceived parental rearing styles in Spanish children with the EMBU. *International Journal of Social Psychiatry, 39*(1), 47-57.

Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environment. *Psychological Bulletin, 124*(1), 3-21.

Chorpita, B. F., Brown, T. A., & Barlow, D. H. (1998). Perceived control as a mediator of family environment in etiological models of childhood anxiety. *Behavior Therapy, 29*(3), 457-476.

Chorpita, B. F., Moffitt, C. E., & Gray, J. (2005). Psychometric properties of the Revised Child Anxiety and Depression Scale in a clinical sample. *Behaviour Research and Therapy, 43*(3), 309-322.

Chorpita, B. F., Tracey, S. A., Brown, T. A., Collica, T. J., & Barlow, D. H. (1997). Assessment of worry in children and adolescents: An adaptation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 35*(6), 569-581.

Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A Revised Child Anxiety and Depression Scale. *Behaviour Research and Therapy, 38*(8), 835-855.

Clark, L. A., & Watson, D. L. (1991). Tripartite model of anxiety and depression: psychometric evidence and taxonomic implications. *Journal of Abnormal Psychology, 100*(3), 316.

Coan, R. W., Fairchild, M. T., & Dobyns, Z. P. (1973). Dimensions of experienced control. *The Journal of social psychology, 91*(1), 53-60.

Cohen, J. (1992). A Power Primer. *Psychological Bulletin, 112*(1), 155-159.

Cole, D. A., & Turner Jr., J. E. (1993). Models of cognitive mediation and moderation in child depression. *Journal of Abnormal Psychology, 102*(2), 271-281.

De Los Reyes, A., Augenstein, T. M., Wang, M., Thomas, S. A., Drabick, D. A., Burgers, D. E., & Rabinowitz, J. (2015). The validity of the multi-informant approach to

assessing child and adolescent mental health. *Psychological Bulletin, 141*(4), 858-900.

de Ross, R. L., Gullone, E., & Chorpita, B. F. (2002). The revised child anxiety and depression scale: a psychometric investigation with Australian youth. *Behaviour Change, 19*(02), 90-101.

Dempster, A. P., Laird, N. M., & Rubin, D. B. (1977). Maximum likelihood from incomplete data via the EM algorithm. *Journal of the Royal Statistical Society. Series B (Methodological)*, 39(1), 1-38.

Derdikman-Eiron, R., Indredavik, M. S., Bratberg, G. H., Taraldsen, G., Bakken, I. J., & Colton, M. (2011). Gender differences in subjective well-being, self-esteem and psychosocial functioning in adolescents with symptoms of anxiety and depression: Findings from the Nord-Trøndelag health study. *Scandinavian Journal of Psychology, 52*(3), 261-267.

Dong, Y., & Peng, C. J. (2013). Principled missing data methods for researchers. *Springerplus, 2*(1), 222.

Dumas, J. E., LaFreniere, P. J., & Serketich, W. J. (1995). "Balance of power": A transactional analysis of control in mother-child dyads involving socially competent, aggressive, and anxious children. *Journal of Abnormal Psychology, 104*(1), 104-113.

DuPont, R. L., Rice, D. P., Miller, L. S., Shiraki, S. S., Rowland, C. R., & Harwood, H. J. (1996). Economic costs of anxiety disorders. *Anxiety, 2*(4), 167-172.

Ebesutani, C., Chorpita, B. F., Higa-McMillan, C. K., Nakamura, B. J., Regan, J., & Lynch, R. E. (2011). A psychometric analysis of the Revised Child Anxiety and

Depression Scales-Parent Version in a school sample. *Journal of Abnormal Child Psychology, 39*, 173-185.

Edwards, S. L., Rapee, R. M., & Kennedy, S. (2010). Prediction of anxiety symptoms in preschool-aged children: Examination of maternal and paternal perspectives. *Journal of Child Psychology and Psychiatry, 51*(3), 313-321.

Elkins, R. M., Pincus, D. B., & Comer, J. S. (2014). A Psychometric Evaluation of the Panic Disorder Severity Scale for Children and Adolescents. *Psychological Assessment, 26*(2), 609-618.

Ezpeleta, L., Keeler, G., Alaatin, E., Costello, E. J., & Angold, A. (2001). Epidemiology of psychiatric disability in childhood and adolescence. *Journal of Child Psychology and Psychiatry, 42*(7), 901-914.

Feehan, M., McGee, R., & Williams, S. M. (1993). Mental health disorders from age 15 to age 18 years. *Journal of the American Academy of Child & Adolescent Psychiatry, 32*(6), 1118-1126.

Ferdinand, R. F., & Verhulst, F. C. (1995). Psychopathology from adolescence into young adulthood: An 8-year follow-up study. *The American Journal of Psychiatry, 152*(11), 1586-1594.

Finch Jr., A. J., Spirito, A., Kendall, P. C., & Mikulka, P. J. (1981). Multidimensionality of the Nowicki-Strickland Locus of Control Scale for Adults. *Journal of Personality Assessment, 45*(2), 151-154.

Frala, J. L., Leen-Feldner, E. W., Blumenthal, H., & Barreto, C. C. (2010). Relations among perceived control over anxiety-related events, worry, and generalized

anxiety disorder in a sample of adolescents. *Journal of Abnormal Child Psychology, 38*(2), 237-247.

Frazier, P., Keenan, N., Anders, S., Perera, S., Shallcross, S., & Hintz, S. (2011). Perceived past, present, and future control and adjustment to stressful life events. *Journal of Personality and Social Psychology, 100*(4), 749-765.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*(3), 233-239.

Gallagher, B., & Cartwright-Hatton, S. (2008). The relationship between parenting factors and trait anxiety: Mediating role of cognitive errors and metacognition. *Journal of Anxiety Disorders, 22*(4), 722-733.

Gallagher, M. W., Bentley, K. H., & Barlow, D. H. (2014). Perceived control and vulnerability to anxiety disorders: A meta-analytic review. *Cognitive Therapy and Research, 38*(6), 571-584.

Gerlsma, C., Arrindell, W. A., Van der Veen, N., & Emmelkamp, P. M. (1991). A parental rearing style questionnaire for use with adolescents: Psychometric evaluation of the EMBU-A. *Personality and Individual Differences, 12*(12), 1245-1253.

Gray, J. A., & McNaughton, N. (1996). The neuropsychology of anxiety: Reprise. In D. A. Hope & D. A. Hope (Eds.), *Nebraska Symposium on Motivation, 1995: Perspectives on anxiety, panic, and fear.* (pp. 61-134). Lincoln, NE: University of Nebraska Press.

Greco, L. A., & Morris, T. L. (2002). Paternal child-rearing style and child social anxiety: Investigation of child perceptions and actual father behavior. *Journal of Psychopathology and Behavioral Assessment, 24*(4), 259-267.

Grover, R. L., Ginsburg, G. S., & Ialongo, N. (2007). Psychosocial outcomes of anxious first graders: A seven-year follow-up. *Depression and Anxiety, 24*(6), 410-420.

Gruner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry, 30*(1999), 27-35.

Grüner, K., Muris, P., & Merckelbach, H. (1999). The relationship between anxious rearing behaviours and anxiety disorders symptomatology in normal children. *Journal of Behavior Therapy and Experimental Psychiatry, 30*(1), 27-35.

Harper, H., Oei, T. P., Mendalgio, S., & Evans, L. (1990). Dimensionality, validity, and utility of the IE scale with anxiety disorders. *Journal of Anxiety Disorders, 4*(2), 89-98.

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408-420.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: The Guilford Press.

Higa-McMillan, C. K., Francis, S. E., & Chorpita, B. F. (2014). Anxiety Disorders. In E. J. Mash & R. A. Barkley (Eds.), *Child Psychopathology* (3rd ed., pp. 345-428). New York: The Guilford Press.

Hirshfeld, D. R., Rosenbaum, J. F., Biederman, J., Bolduc, E. A., Faraone, S. V., Snidman, N., . . . Kagan, J. (1992). Stable behavioral inhibition and its association

with anxiety disorder. *Journal of the American Academy of Child & Adolescent Psychiatry, 31*(1), 103-111.

Hoffman, J. A., & Teyber, E. C. (1979). Some relationships between sibling age and personality. *Merrill-Palmer Quarterly of Behavior and Development, 25*(1), 77-80.

Hogendoorn, S. M., Prins, P. J., Boer, F., Vervoort, L., Wolters, L. H., Moorlag, H., . . . de Haan, E. (2014). Mediators of cognitive behavioral therapy for anxiety-disordered children and adolescents: Cognition, perceived control, and coping. *Journal of Clinical Child and Adolescent Psychology, 43*(3), 486-500.

Hogendoorn, S. M., Vervoort, L., Wolters, L. H., Prins, P. J., de Haan, E., Hartman, C. A., . . . Boer, F. (2012). Perceived control in clinically anxious and non-anxious children indirectly measured with the Implicit Association Procedure (IAP). *Journal of Behavior Therapy and Experimental Psychiatry, 43*(3), 915-921.

Hogendoorn, S. M., Wolters, L. H., Haan, E., Lindauer, R. J., Tillema, A., Vervoort, L., . . . Prins, P. J. (2014). Advancing an understanding of the Anxiety Control Questionnaire for Children (ACQ-C) in clinically anxious and non-anxious youth: Psychometric properties, incremental prediction and developmental differences. *Journal of Psychopathology and Behavioral Assessment, 36*(2), 288-299.

Holbert, R. L., & Stephenson, M. T. (2003). The importance of indirect effects in media effects research: Testing for mediation in structural equation modeling. *Journal of Broadcasting & Electronic Media, 47*(4), 556-572.

Hudson, J. L., & Rapee, R. M. (2001). Parent–child interactions and anxiety disorders: An observational study. *Behaviour Research and Therapy, 39*(12), 1411-1427.

Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 31*(4), 595-599.

Kendall, P. C., Finch Jr., A. J., Little, V. L., Chirico, B. M., & Ollendick, T. H. (1978). Variations in a construct: Quantitative and qualitative differences in children's locus of control. *Journal of Consulting and Clinical Psychology, 46*(3), 590-592.

Kessler, R. C., Avenevoli, S., McLaughlin, K. A., Green, J. G., Lakoma, M. D., Petukhova, M., . . . Merikangas, K. R. (2012). Lifetime co-morbidity of DSM-IV disorders in the US National Comorbidity Survey Replication Adolescent Supplement (NCS-A). *Psychological Medicine, 42*(9), 1997-2010.

Klimidis, S., Minas, I. H., & Ata, A. W. (1992). The PBI-BC: A brief current form of the Parental Bonding Instrument for adolescent research. *Comprehensive Psychiatry, 33*(6), 374-377.

Klockars, A. J., & Varnum, S. W. (1975). A test of the dimensionality assumptions of Rotter's Internal-External Scale. *Journal of personality assessment, 39*(4), 397-404.

La Greca, A. M., & Stone, W. L. (1993). Social anxiety scale for children-revised: Factor structure and concurrent validity. *Journal of Clinical Child Psychology, 22*(1), 17-27.

Lange, R. V., & Tiggemann, M. (1981). Dimensionality and reliability of the Rotter IE locus of control scale. *Journal of Personality Assessment, 45*(4), 398-406.

Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association, 83*(404), 1198-1202.

Lonigan, C. J., Carey, M. P., & Finch Jr., A. J. (1994). Anxiety and depression in children and adolescents: Negative affectivity and the utility of self-reports. *Journal of Consulting and Clinical Psychology, 62*(5), 1000-1008.

Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlations with academic performance and stress. *Journal of Educational Psychology, 82*(4), 760-768.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods, 7*(1), 83-104.

Magaro, M. M., & Weisz, J. R. (2006). Perceived control mediates the relation between parental rejection and youth depression. *Journal of Abnormal Child Psychology, 34*(6), 867-876.

Mandler, G., & Watson, D. L. (1966). Anxiety and the interruption of behavior. In C. Spielberger (Ed.), *Anxiety and behavior* (pp. 263-288). New York: Academic Press.

March, J. S., Parker, J. D., Sullivan, K., Stallings, P., & Conners, C. K. (1997). The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability, and validity. *Journal of the American Academy of Child & Adolescent Psychiatry, 36*(4), 554-565.

Markus, M. T., Lindhout, I. E., Boer, F., Hoogendijk, T. H., & Arrindell, W. A. (2003). Factors of perceived parental rearing styles: The EMBU-C examined in a sample of Dutch primary school children. *Personality and Individual Differences, 34*(3), 503-519.

Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger State—Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology, 31*(3), 301-306.

McGinn, L. K., Jerome, Y., & Nooner, K. B. (2010). Family functioning and anxiety in school age children: The mediating role of control cognitions. *International Journal of Cognitive Therapy, 3*(3), 228-244.

Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., . . . Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(10), 980-989.

Messer, S. C., & Beidel, D. C. (1994). Psychosocial correlates of childhood anxiety disorders. *Journal of the American Academy of Child & Adolescent Psychiatry, 33*(7), 975-983.

Michael, K. D., & Merrell, K. W. (1998). Reliability of children's self-reported internalizing symptoms over short to medium-length time intervals. *Journal of the American Academy of Child & Adolescent Psychiatry, 37*(2), 194-201.

Mineka, S., Watson, D. L., & Clark, L. A. (1998). Comorbidity of anxiety and unipolar mood disorders. *Annual Review of Psychology, 49*(1), 377.

Moos, R. H., Insel, P. M., & Humphrey, B. (1974). *Preliminary manual for Family Environment Scale, Work Environment Scale, Group Environment Scale*. Palo Alto, CA: Consulting Psychologist Press.

Muris, P., Meesters, C., & von Brakel, A. (2003). Assessment of anxious rearing behaviors with a modified version of 'Egna Minnen Beträffande Uppfostran' questionnaire for children. *Journal of Psychopathology and Behavioral Assessment, 25*(4), 229-237.

Murray, L., Lau, P. Y., Arteche, A., Creswell, C., Russ, S., Zoppa, L. D., . . . Cooper, P. J. (2012). Parenting by anxious mothers: Effects of disorder subtype, context and child characteristics. *Journal of Child Psychology and Psychiatry, 53*(2), 188-196.

Nail, J. E., Christofferson, J., Ginsburg, G. S., Drake, K., Kendall, P. C., McCracken, J. T., . . . Sakolsky, D. (2015). Academic impairment and impact of treatments among youth with anxiety disorders. *Child & Youth Care Forum, 44*(3), 327-342.

Nanda, M. M., Kotchick, B. A., & Grover, R. L. (2012). Parental psychological control and childhood anxiety: The mediating role of perceived lack of control. *Journal of Child and Family Studies, 21*(4), 637-645.

Niditch, L. A., & Varela, R. E. (2012). Perceptions of parenting, emotional self-efficacy, and anxiety in youth: Test of a mediational model. *Child & Youth Care Forum, 41*(1), 21-35.

Nowicki, S., & Duke, M. P. (1974). A Locus of Control Scale for noncollege as well as college adults. *Journal of personality assessment, 38*(2), 136-137.

Nowicki, S., & Strickland, B. R. (1973). A Locus of Control Scale for children. *Journal of Consulting and Clinical Psychology, 40*(1), 148-154.

Ollendick, T. H. (1983). Reliability and validity of the revised fear survey schedule for children (FSSC-R). *Behaviour Research and Therapy, 21*(6), 685-692.

Ollendick, T. H., Seligman, L. D., Goza, A. B., Byrd, D. A., & Singh, K. (2003). Anxiety and depression in children and adolescents: A factor-analytic examination of the tripartite model. *Journal of Child and Family Studies, 12*(2), 157-170.

Pallant, J. F. (2000). Development and validation of a scale to measure perceived control of internal states. *Journal of personality assessment, 75*(2), 308-337.

Parker, G., Tupling, H., & Brown, L. B. (1979). A Parental Bonding Instrument. *British Journal of Medical Psychology, 52*(1), 1-10.

Paulhus, D. (1983). Sphere-specific measures of perceived control. *Journal of Personality and Social Psychology, 44*(6), 1253-1265.

Peng, C. J., Harwell, M., Liou, S., & Ehman, L. H. (2006). Advances in missing data methods and implications for educational research. In S. S. Sawilowsky (Ed.), *Real data analysis* (pp. 31-78). Charlotte, NC: Information Age Publishing.

Pereira, A. I., Barros, L., & Mendonça, D. (2012). Perceived control and anxiety in Portuguese children. *The Spanish Journal of Psychology, 15*(2), 631-637.

Perris, C., Jacobsson, L., Linndström, H., von Knorring, L., & Perris, H. (1980). Development of a new inventory for assessing memories of parental rearing behaviour. *Acta Psychiatrica Scandinavica, 61*(4), 265-274.

Pine, D. S., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry, 55*(1), 56-64.

Platt, R., Williams, S. R., & Ginsburg, G. S. (2016). Stressful life events and child anxiety: Examining parent and child mediators. *Child Psychiatry and Human Development, 47*(1), 23-34.

Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731.

Rapee, R. M. (2012). Family factors in the development and management of anxiety disorders. *Clinical Child and Family Psychology Review, 15*(1), 69-80.

Rapee, R. M., Craske, M. G., Brown, T. A., & Barlow, D. H. (1996). Measurement of perceived control over anxiety-related events. *Behavior Therapy, 27*(2), 279-293.

Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology, 6*(2), 271-280.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1-28.

Rubin, D. B. (1976). Inference and missing data. *Biometrika, 63*(3), 581-592.

Scott, B. G., & Weems, C. F. (2014). Resting vagal tone and vagal response to stress: Associations with anxiety, aggression, and perceived anxiety control among youths. *Psychophysiology, 51*(8), 718-727.

Seligman, M. E. (1975). *Helplessness*. San Fransisco, CA: W.H. Freeman & Company.

Silverman, W. K., & Albano, A. (1996). *The Anxiety Disorders Inverview Schedule for Children for DSM-IV (Child and Parent Versions)*. San Antonio, TX: Psychological Corporation.

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology, 71*(3), 549-570.

Spence, S. H. (1997). Structure of anxiety symptoms among children: A confirmatory factor-analytic study. *Journal of Abnormal Psychology, 106*(2), 280.

Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy, 36*(5), 545-566.

Spielberger, C. D., & Edwards, C. D. (1973). *STAIC preliminary manual for the State-Trait Anxiety Inventory for Children ("How I Feel Questionnaire")*. Palo Alto, CA: Consulting Psychologists Press.

Stark, K. D., & Laurent, J. (2001). Joint factor analysis of the children's depression inventory and the Revised Children's Manifest Anxiety Scale. *Journal of Clinical Child Psychology, 30*(4), 552-567.

Tan, F., Wu, W., & Yao, S. (2010). A comparison between factor structure invariance of Multidimensional Anxiety Scale for Chinese and Italian children sample. *Chinese Journal of Clinical Psychology, 18*(6), 704-706.

Turner, S. M., Beidel, D. C., & Costello, A. (1987). Psychopathology in the offspring of anxiety disorders patients. *Journal of Consulting and Clinical Psychology, 55*(2), 229-235.

van Gastel, W., Legerstee, J. S., & Ferdinand, R. F. (2009). The role of perceived parenting in familial aggregation of anxiety disorders in children. *Journal of Anxiety Disorders, 23*(1), 46-53.

Villabø, M. A., Gere, M., Torgersen, S., March, J. S., & Kendall, P. C. (2012). Diagnostic efficiency of the child and parent versions of the Multidimensional Anxiety Scale for Children. *Journal of Clinical Child and Adolescent Psychology, 41*(1), 75-85.

Waite, P., & Creswell, C. (2015). Observing interactions between children and adolescents and their parents: The effects of anxiety disorder and age. *Journal of Abnormal Child Psychology, 43*(6), 1079-1091.

Watson, D. L., Clark, L. A., & Chmielewski, M. (2008). Structures of personality and their relevance to psychopathology: II. Further articulation of a comprehensive unified trait structure. *Journal Of Personality, 76*(6), 1545-1586.

Weems, C. F., Costa, N. M., Watts, S. E., Taylor, L. K., & Cannon, M. F. (2007). Cognitive errors, anxiety sensitivity, and anxiety control beliefs. *Behavior Modification, 31*(2), 174-201.

Weems, C. F., & Silverman, W. K. (2006). An integrative model of control: Implications for understanding emotion regulation and dysregulation in childhood anxiety. *Journal of Affective Disorders, 91*(2–3), 113-124.

Weems, C. F., Silverman, W. K., Rapee, R. M., & Pina, A. A. (2003). The role of control in childhood anxiety disorders. *Cognitive Therapy and Research, 27*(5), 557-568.

Wei, C., Hoff, A., Villabø, M. A., Peterman, J., Kendall, P. C., Piacentini, J., . . . March, J. S. (2014). Assessing anxiety in youth with the Multidimensional Anxiety Scale

for Children. *Journal of Clinical Child and Adolescent Psychology, 43*(4), 566-578.

Wei, C., & Kendall, P. C. (2014). Child perceived parenting behavior: Childhood anxiety and related symptoms. *Child & Family Behavior Therapy, 36*(1), 1-18.

Weisz, J. R. (1986). Understanding the developing understanding of control. In M. Perlmutter (Ed.), *Cognitive perspectives on children's social and behavioral development: The Minnesota Symposia on Child Psychology* (Vol. 18, pp. 219-285). Hillsdale, NJ: Erlbaum.

Weisz, J. R., Southam-Gerow, M. A., & McCarty, C. A. (2001). Control-related beliefs and depressive symptoms in clinic-referred children and adolscents: Developmental differences and model specificity. *Journal of Abnormal Psychology, 110*(1), 97-109.

Weisz, J. R., & Stipek, D. J. (1982). Competence, contingency, and the development of perceived control. *Human Development, 25*(4), 250-281.

Weisz, J. R., Sweeney, L., Proffitt, V., & Carr, T. (1993). Control-related beliefs and self-reported depressive symptoms in late childhood. *Journal of Abnormal Psychology, 102*(3), 411-418.

Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(9), 1086-1093.

Wren, F. J., Berg, E. A., Heiden, L. A., Kinnamon, C. J., Ohlson, L. A., Bridge, J. A., . . . Bernal, M. P. (2007). Childhood anxiety in a diverse primary care population.

Journal of the American Academy of Child & Adolescent Psychiatry, *46*(3), 332-340.

Yen, C., Yang, P., Wu, Y., Hsu, F., & Cheng, C. (2010). Factor structure, reliability and validity of the Taiwanese version of the Multidimensional Anxiety Scale for Children. *Child Psychiatry and Human Development*, *41*(3), 342-352.

Young, B. J., Wallace, D. P., Imig, M., Borgerding, L., Brown-Jacobsen, A. M., & Whiteside, S. P. (2013). Parenting behaviors and childhood anxiety: A psychometric investigation of the EMBU-C. *Journal of Child and Family Studies*, *22*(8), 1138-1146.

Zhao, X., Lynch, J. G., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research, 37*(2), 197-206.

Appendix A

Modified EMBU-C

The questions on the next pages concern how you feel about the way your parents treat you. This is different for each child. That is why we want to ask you to answer all these questions yourself. You cannot give a wrong answer to any of these questions. This is not a school test. Usually, you know quite well what the rules and customs are at your home and how you and your family get along. Try to give the best answer to the question with the help of events that you remember. What is important is what *you* feel about things, and not what other people think about them.

Select the answer that fits your parents the best.

You can choose from the following answers:

1 = No, never 2 = Yes, but seldom 3 = Yes, often 4 = Yes, most of the time

Always choose just *one* answer. If you do not understand something, or if you have any questions, please raise your hand, so that one of us can see that you need help.

1=No, never	2=Yes, but seldom	3=Yes, often	4=Yes, most of the time	
1	2	3	4	1. When you come home, you have to tell your parents what you have been doing.*
1	2	3	4	2. When you are unhappy, your parents console you and cheer you up.
1	2	3	4	3. Your parents want you to reveal your secrets to them.*

1	2	3	4	4. Your parents tell you that they don't like your behavior
1	2	3	4	5. Your parents like you just the way you are.
1	2	3	4	6. Your parents worry about what you are doing after school.
1	2	3	4	7. Your parents play with you and are interested in your hobbies.
1	2	3	4	8. Your parents treat you unfairly.
1	2	3	4	9. Your parents are afraid that something might happen to you.
1	2	3	4	10. Your parents listen to you and consider your opinion.
1	2	3	4	11. Your parents wish that you were like somebody else.
1	2	3	4	12. Your parents want to decide how you should be dressed or how you should look.*
1	2	3	4	13. Your parents worry about you getting into trouble.
1	2	3	4	14. You are blamed for everything that goes wrong.
1	2	3	4	15. Your parents punish you for no reason.
1	2	3	4	16. Your parents tell you what you should do after school hours.*
1	2	3	4	17. Your parents want to be with you.
1	2	3	4	18. Your parents worry about you doing dangerous things.

1	2	3	4	19. Your parents show that they love you.
1	2	3	4	20. Your parents criticize you in front of others.
1	2	3	4	21. Your parents know exactly what you are allowed to do and what not.*
1	2	3	4	22. Your parents worry about you making a mistake.
1	2	3	4	23. You feel disappointed because your parents don't give you what you want.
1	2	3	4	24. Your parents allow you to decide what you want to do.*
1	2	3	4	25. Your parents take care that you behave by the rules.*
1	2	3	4	26. Your parents are afraid when you do something on your own.
1	2	3	4	27. Your parents and you like each other.
1	2	3	4	28. Your parents are mean and grudging towards you.
1	2	3	4	29. Your parents are anxious people and therefore you are not allowed to do as many things as other children.
1	2	3	4	30. When you have done something stupid, you can make it up with your parents.
1	2	3	4	31. Your parents watch you very carefully.*

1	2	3	4	32. Your parents think that they have to decide everything for you.*
1	2	3	4	33. Your parents give you compliments.
1	2	3	4	34. If something happens at home, you are the one who gets blamed for it.
1	2	3	4	35. Your parents warn you of all possible dangers.
1	2	3	4	36. Your parents help you when you have to do something difficult.
1	2	3	4	37. Your parents are worried when they don't know what you are doing.
1	2	3	4	38. Your parents keep a check on you.*
1	2	3	4	39. Your parents beat you for no reason.
1	2	3	4	40. Your parents want to keep you from all possible dangers.

*Overprotection subscale items

Appendix B

ACQ-C

Listed below are a number of statements which boys and girls use to describe themselves. Please read each question and answer them as honestly as you can. There are no Right or Wrong answers.

Use the numbers to show how much each question is true for you.

0	1	2	3	4
None	A little	Some	A lot	Very Very Much

_____1. I can usually stay away from things that might hurt me pretty easily.

_____2. I can deal with hard or difficult things that happen without other people helping me.

_____3. When I am in a place that gets me nervous or afraid, I can take charge over and control my feelings.

_____4. I can usually stop my anxiety from being seen by other people.

_____5. When something scares me, there is always something I can do.

_____6. I can take charge and control my feelings.

_____7. I can change the way that people feel about me.

_____8. I would be able to get away from a scary or frightening place.

_____9. If I begin to shake or tremble I can stop myself.

_____10. I can usually stop thinking about things that make me nervous or afraid if I try.

_____11. When I am scared or nervous, I am able to stop myself from breathing too hard.

_____12. I can usually change how much a situation is unsafe for me.

_____13. I am able to change how much nervousness or fear I feel.

_____14. There is usually something I can do to change scary things.

_____15. I can make myself feel good again when bad things happen to me.

_____16. If something is going to hurt me, I know what to do.

_____17. I can usually calm myself down when I want to.

_____18. I am always sure what I will do when I am nervous or afraid.

_____19. I can usually make sure people like me if I try real hard.

_____20. Most things that make me nervous are things I can take charge of and control.

_____21. I always know exactly how I will act when hard and difficult things happen.

_____22. I know how to deal with feeling scared or anxious so I do not care if I become scared or anxious.

_____23. I can usually control what people think about me.

_____24. I can usually deal with hard problems.

_____25. When I hear that someone is very sick, I don't worry that I will get sick too.

_____26. When I am anxious or nervous, I can still think about things other than my feelings of anxiety.

_____27. I can handle scary things I did not expect or think would happen as good as I can handle scary things that I expected or thought would happen.

_____28. I try to deal with my anxiety because I may be able to do something to help how much I feel it.

_____29. I am good at getting along with people who bug me.

_____30. I am good at taking care of things that go wrong.

Appendix C

RCADS

Please put a circle around the word that shows how often each of these things happen to you. There are no right or wrong answers.

1.	I worry about things.*	Never	Sometimes	Often	Always
2.	I feel sad or empty.	Never	Sometimes	Often	Always
3.	When I have a problem, I get a funny feeling in my stomach.*	Never	Sometimes	Often	Always
4.	I worry when I think I have done poorly at something.*	Never	Sometimes	Often	Always
5.	I would feel afraid of being on my own at home.*	Never	Sometimes	Often	Always
6.	Nothing is much fun anymore.	Never	Sometimes	Often	Always
7.	I feel scared when I have to take a test.*	Never	Sometimes	Often	Always
8.	I feel worried when I think someone is angry with me.*	Never	Sometimes	Often	Always
9.	I worry about being away from my parents.*	Never	Sometimes	Often	Always
10.	I get bothered by bad or silly thoughts or pictures in my mind.*	Never	Sometimes	Often	Always
11.	I have trouble sleeping.	Never	Sometimes	Often	Always
12.	I worry that I will do badly at my school work.*	Never	Sometimes	Often	Always
13.	I worry that something awful will happen to someone in my family.*	Never	Sometimes	Often	Always
14.	I suddenly feel as if I can’t breathe when there is no reason for this.*	Never	Sometimes	Often	Always

15.	I have problems with my appetite.	Never	Sometimes	Often	Always
16.	I have to keep checking that I have done things right (like the switch is off, or the door is locked).*	Never	Sometimes	Often	Always
17.	I feel scared if I have to sleep on my own.*	Never	Sometimes	Often	Always
18.	I have trouble going to school in the mornings because I feel nervous or afraid.*	Never	Sometimes	Often	Always
19.	I have no energy for things.	Never	Sometimes	Often	Always
20.	I worry I might look foolish.*	Never	Sometimes	Often	Always
21.	I am tired a lot.	Never	Sometimes	Often	Always
22.	I worry that bad things will happen to me.*	Never	Sometimes	Often	Always
23.	I can’t seem to get bad or silly thoughts out of my head.*	Never	Sometimes	Often	Always
24.	When I have a problem, my heart beats really fast.*	Never	Sometimes	Often	Always
25.	I cannot think clearly.	Never	Sometimes	Often	Always
26.	I suddenly start to tremble or shake when there is no reason for this.*	Never	Sometimes	Often	Always
27.	I worry that something bad will happen to me.*	Never	Sometimes	Often	Always
28.	When I have a problem, I feel shaky.*	Never	Sometimes	Often	Always
29.	I feel worthless.	Never	Sometimes	Often	Always
30.	I worry about making mistakes.*	Never	Sometimes	Often	Always
31.	I have to think of special thoughts (like numbers or words) to stop bad things from happening.*	Never	Sometimes	Often	Always

32. I worry what other people think of me.*	Never	Sometimes	Often	Always
33. I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds).*	Never	Sometimes	Often	Always
34. All of a sudden, I feel really scared for no reason at all.*	Never	Sometimes	Often	Always
35. I worry about what is going to happen.*	Never	Sometimes	Often	Always
36. I suddenly become dizzy or faint when there is no reason for this.*	Never	Sometimes	Often	Always
37. I think about death.*	Never	Sometimes	Often	Always
38. I feel afraid if I have to talk in front of my class.*	Never	Sometimes	Often	Always
39. My heart suddenly starts to beat too quickly for no reason.*	Never	Sometimes	Often	Always
40. I feel like I don't want to move.	Never	Sometimes	Often	Always
41. I worry that I will suddenly get a scared feeling when there is nothing to be afraid of.*	Never	Sometimes	Often	Always
42. I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order).*	Never	Sometimes	Often	Always
43. I feel afraid that I will make a fool of myself in front of people.*	Never	Sometimes	Often	Always
44. I have to do some things in just the right way to stop bad things from happening.*	Never	Sometimes	Often	Always
45. I worry when I go to bed at night.*	Never	Sometimes	Often	Always

46. I would feel scared if I had to stay away from home overnight.*	Never	Sometimes	Often	Always
47. I feel restless.	Never	Sometimes	Often	Always

*Total Anxiety subscale items

Appendix D

Informed Consent

Principal Investigator: Dr. Sarah Francis, PhD., (419) 530-2771

Susan Doyle, (419) 530-2717

Shannon Manley, (419) 530-2717

Purpose: Your child is invited to participate in the research project entitled Protective Factors for Child Anxiety which is being conducted at your child's school under the direction of *Dr. Sarah Francis at the University of Toledo*. The purpose of this study is to gain information about protective factors for child anxiety.

Description of Procedures: This research study will take place in your child's school for children and online for parents.

Your child will be asked to fill out 10 questionnaires. It usually takes children two 20-minute sessions to fill out the 11 questionnaires. The questionnaires will ask your child about feeling scared or worried, about how often they have positive and negative feelings, and about how they respond to feeling scared or worried. Here are some sample statements where your child would mark down how much they felt they were true for them: *"I don't really worry about things", "It is important for me not to appear nervous", "I understand what is going on in my head when I think about a problem", or "I can usually calm myself down when I need to".*

If you decide to take part in this project, you will be asked to fill out 11 questionnaires. You can fill out these questionnaires online at any time. To fill out the questionnaires online, we will send you a code to use on the Internet after you have returned this consent form. You can also ask us to mail you these questionnaires. It

usually takes 40 minutes for parents fill out these questionnaires. The questionnaires will ask you about things such as feelings of worry, how you react to feelings of fear, how often you feel positive and negative feelings, and how you feel your child reacts to positive and negative feelings. Here are some sample statements where you would mark down how much you felt they were true for you: *"It would excite me to win a contest", "I find it difficult to relax", "I feel determined", "I encourage my child to be curious, to explore, and to question things".* A research assistant may contact you to follow-up on your progress with the questionnaires.

Potential Risks/Alternatives: There are minimal risks to participation in this study, including loss of confidentiality. Your child may experience some discomfort from reading certain items on the questionnaires, although this is very unlikely. Your child has the right to not answer any specific questions or to stop their participation at any time. Should you or your child become upset while taking part in this study, the researcher will be available to answer your questions and address your concerns. If you have questions or concerns about taking part in the study *after* you or your child has completed the questionnaires, the investigator will also be available to answer any questions and address any concerns.

Additionally, if requested, the investigator will also be able to provide you with a referral to a registered counselor or psychologist.

Potential Benefits: One potential benefit if you allow your child to participate in this research may be that you will learn about how research studies are run and you may learn more about protective factors for child anxiety. Others may benefit by learning about the results of this research.

Confidentiality: The researchers will make every effort to prevent anyone who is not on the research team from knowing that your child provided this information, or what that information is. The consent forms with signatures will be kept separate from responses. Responses will not include names and will be presented to others only when combined with other responses.

Although we will make every effort to protect your child's confidentiality, there is a low risk that this might be breached. Also, you should know that there are some limits to confidentiality. Cases where reported information indicates that you or another person is judged to be in imminent danger and cases of suspected child abuse or neglect must be reported to the appropriate authorities.

Voluntary Participation: Your refusal to allow your child to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with The University of Toledo or your child's school. In addition, your child may discontinue participation at any time without any penalty or loss of benefits. If your child does not participate in the study, your child will continue their school day as normal (i.e. working at their desk) while other students participate in the study in another part of the school.

Contact Information: Before you decide to accept this invitation for your child to take part in this study, you may ask any questions that you might have. If you have any questions at any time before, during or after your participation or if you or your child experiences any psychological distress as a result of this research you should contact a member of the research team Dr. Sarah Francis (419-530-2771) or Susan Doyle/Shannon

Manley (419- 530-2717).

If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, the Chairperson of the SBE Institutional Review Board may be contacted through the Office of Research on the main campus at (419) 530-2844.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

SIGNATURE SECTION – Please read carefully

You are making a decision whether or not you and your child will participate in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to allow you your child to take part in this research.

The date you sign this document to enroll your child in this study, that is, today's date must fall between the dates indicated at the bottom of the page.

[ ] I AGREE for myself and my child to participate in this research study.

_____

Please indicate email address or mailing address for parent survey participants.

[ ] I AGREE for my child to participate in this research, but I am not interested in participating.

_____	_____	_____
Name of Parent Participant (please print)	Signature	Date

Name of Child Participant
(please print)

Name of Person Obtaining Consent | Signature | Date

(please print)

This Adult Research Informed Consent document has been reviewed and approved by the University of Toledo Social, Behavioral Educational IRB for the period of time specified in the box below.

Approved Number of Subjects: 300

Appendix E

Child Assent

Principal Investigators: Dr. Sarah Francis, PhD., (419) 530-2771

Susan Doyle, Student Researcher (419) 530-2760

Shannon Manley, Student Researcher (419) 530-2760

- You are being asked to be in a study to help people find out more about the way children think and feel about things.
- You should ask any questions you have before making up your mind. You can think about it and discuss it with your family or friends before you decide.
- It is okay to say "No" if you don't want to be in the study. If you say "Yes" you can change your mind and then quit the study at any time without getting in trouble. If you say "No" to the study, you will continue to take part in your classroom activities as you normally would while the study is going on.

We are doing a research study about the way children and their parents think and feel about things. A research study is a way to learn more about people. If you decide that you want to be a part of this study, you will be asked to answer some questions about how you think and feel. Some questions that you may be asked are *how much you worry about things, or how often you feel happy*. This is not a test. There are no right or wrong answers. You can answer these questions however you think or feel. If you have questions for anyone, you can ask them now before you begin or any time you need help. You can ask to stop or take a break at any time too.

Everything you say will be confidential. This means that only people working on this project will know what you say, and no one will use your name to talk about

anything that you write.

You might feel uncomfortable answering some of the questions we ask you about how you think and feel. If you do not want to answer a question, you do not have to, but we would like you to try your best. You may also stop at any time. No one will be upset with you.

Not everyone who takes part in this study will benefit. A benefit means that something good happens to you. We think one benefit might be that you learn how a research study works. We also think we might learn things from you that will help us figure out how to help other children and their parents.

When we are finished with this study we will write a report about what was learned. This report will not include your name or say that you were in the study.

If you have any questions about the study, you can ask them at any time. You can also call Dr. Sarah Francis at 419-530-2771, Susan Doyle, 419-530-2717, and Shannon Manley, 419-530-2717 if you have a question later.

If you decide to be in this study, please print and sign your name below.

I, _____, want to be in this research study.
(Print your name here)

Sign your Name: _____ Date: _____