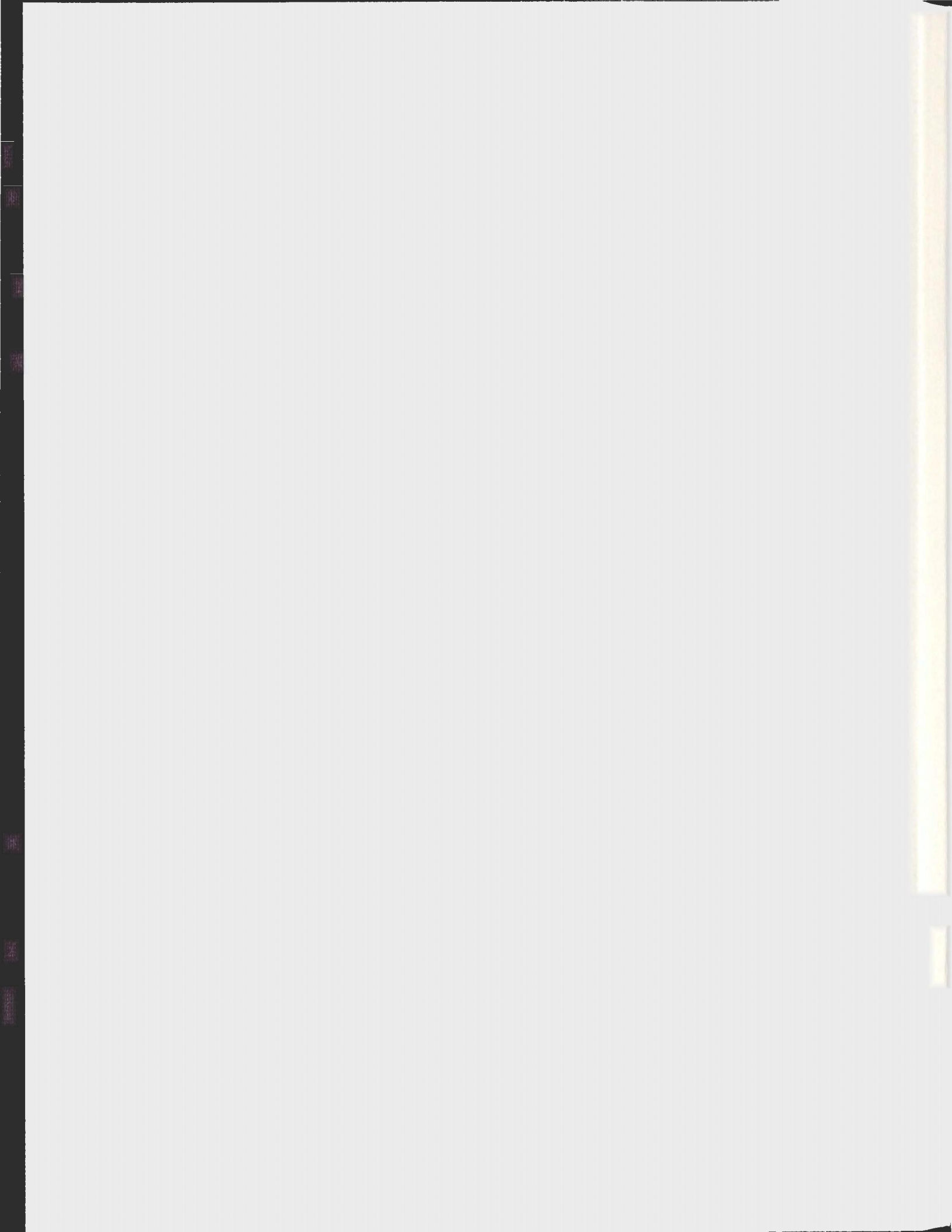


THE RELATIONSHIP BETWEEN MATERNAL AND
CHILD ANXIETY IN A SCHOOL SAMPLE

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The Relationship Between Maternal and Child Anxiety in a School Sample

by © Julia Halfyard A Thesis submitted to the School of Graduate Studies in
partial fulfillment of the requirements for the degree of

Master of Education (Counselling Psychology) Faculty of Education

Memorial University of Newfoundland

August 2013

St. John's Newfoundland and Labrador

Abstract

Anxiety is one of the primary reasons for referral to mental health services among youth (Costello, Egger, & Angold, 2005). There has been a strong correlation between anxious symptoms and disorders in mothers and children (Hughes, Furr, Sood, Barmish, & Kendall, 2009); however, there are limited studies that demonstrate what symptoms are similar in mother-child dyads. Study One compared parent and child self-report measures of anxiety to test the hypothesis that similar items on these measures assess similar anxiety symptoms. Study Two examined similar symptom pairs determined in Study One to test the hypothesis suggesting there is a relationship between maternal and child anxiety. A total of 58 mother-child dyads participated, with children ranging from 7-17 years of age. Results indicated there was a significant relationship between specific anxiety symptoms. Implications of this study will help to provide a better understanding of how the transmission of anxious symptoms from mothers to their children.

Acknowledgments

I would like to thank my co-supervisors, Dr. Sarah Francis and Dr. Greg Harris for their dedication and support throughout my program. Furthermore, I would like to thank the Faculty Directors, Dr. Peter Mezo, Dr. Sarah Francis, and Dr. Greg Radu, undergraduate students, graduate students, and volunteers from the Memorial Institute for Research and Intervention in Anxiety and Mood for their participation in this study. I would also like to acknowledge the Eastern School District of Newfoundland, principals, vice principals, guidance counsellors, and classroom teachers for allowing me to conduct research within their schools. Without these individuals this research would not have been possible.

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Chapter One: Introduction

Child Anxiety Rates, Prevalences, and Symptoms

Anxiety disorders are the most prevalent class of mental disorders in the population (Barlow, 2002). Symptoms of anxiety can affect children of all age levels and anxiety disorders are one of the most common forms of mental health disorders in children (Costello et al., 2005). Between 8% and 27% of children experience anxious feelings and thoughts that meet diagnostic criteria for an anxiety disorder (Costello et al., 2005). Costello and colleagues (2005) also reported that up to 15-20% of the general youth population has a lifetime experience of one or more anxiety disorders. In a recent study conducted by Kessler et al. (2012), twelve-month prevalence rates for anxiety disorders in adolescents aged 13-17 years were determined. Results indicated that 24.9% of adolescents suffer from an anxiety disorder. The highest prevalence rate was 15.8% for specific phobia, followed by 8.2% for social phobia, 1.9% for panic disorder, 1.8% for agoraphobia, 1.6% for separation anxiety disorder, and 1.1% for generalized anxiety disorder. Merikangas et al. (2010) determined lifetime prevalence rates for anxiety disorders in adolescents aged 13-18 years. A total of 31.9% of adolescents were shown to have an anxiety disorder, followed by 19.3% for specific phobia, 9.1% for social phobia, 7.6% for separation anxiety disorder, 2.5% for agoraphobia, 2.3% for panic disorder, and 2.2% for generalized anxiety disorder. Research also indicates that between 8% and 12% of youth suffer from anxiety complaints that are severe enough to interfere with daily life (Bernstein, Borchardt, & Perwien, 1996).

Although specific diagnostic criteria for anxiety disorders in youth did not emerge until the Diagnostic and Statistical Manual Third Edition (DSM-III) (Craske, 2003), there are twelve types of anxiety disorders that can be distinguished in children and adolescents including: separation anxiety disorder, generalized anxiety disorder, social phobia, specific phobia, panic disorder, agoraphobia, obsessive-compulsive disorder, post-traumatic stress disorder, acute stress disorder, anxiety disorder due to general medical condition, substance-induced anxiety disorder, and anxiety disorder not otherwise specified (Huberty, 2012).

Chapter Two: Background Literature

2.1 Assessing Parental and Child Anxiety in Clinical and Nonclinical Samples

The majority of the research in the area of parental and child anxiety uses two main forms of assessment when assessing anxious symptoms. The first is known as a diagnostic interview. A diagnostic interview is the main assessment tool used by clinicians and researchers to determine whether presenting symptoms meet the criteria for a Diagnostic and Statistical Manual (DSM) diagnosis (Muris, 2007). These interviews can be divided into three categories: structured interviews, semi-structured interviews, and unstructured interviews. Structured interviews include a set of questions that must be asked in a fixed order. Semi-structured interviews include those that are standardized and include specific diagnostic questions; however, clinicians and researchers have flexibility in terms of the order of the questions. Finally, unstructured interviews are those in which the diagnostician asks the individual questions based on the diagnostician's clinical judgement. One common highly structured interview that has been used by clinicians and researchers in the child anxiety literature to assess anxiety is the Diagnostic Interview Schedule for Children (DISC; Shaffer et al., 1996). This instrument assesses many psychiatric disorders in children and adolescents including anxiety disorder based on the Diagnostic and Statistical Manual Fourth Edition Text Revision (DSM-IV-TR) (American Psychiatric Association [APA], 2000) symptom criteria. It can be administered to children aged nine to 16 years of age or parents of children aged six to 17 years. Another highly structured interview used throughout the literature is the Structured Clinical Interview for the Diagnostic and Statistical Manual Third Edition Revision

(DSM-III-R) (SCID; Spitzer, Williams, & Gibbon, 1990). This instrument assesses anxiety disorders and symptoms based on the DSM-III-R. Some examples of semi-structured interviews that are commonly used include the Schedule for Affective Disorders and Schizophrenia (K-SADS; Puig-Antich & Chambers, 1978), and the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent versions (ADIS C/P; Silverman & Albano, 1996). Both of these semi-structured interviews examine the presence of anxiety symptoms in children and the interviewer is able to ask additional questions to identify the severity of the symptoms.

The second type of assessment that has been indicated in the literature to assess anxiety symptoms in children is self-report questionnaires. These questionnaires measure anxiety symptoms based on the child's point of view and are given to children to complete independently. One commonly used self-report measure for measuring child anxiety is the State-Trait Anxiety Inventory for Children (STAIC; Spielberger, 1973). Some examples of items on this measure include "I feel troubled", "I am scared", and "I get a funny feeling in my stomach". Another common self-report measure that has been used in the literature is the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). This measure includes subscales examining physiological manifestations of anxiety, worry, and problems with fear and concentration. These measures are older than many of the measures that are used in more current research. According to Muris (2007) they have been developed more than 20 years ago and do not use current diagnostic constructs. It has been suggested that they may be more suitable for measuring general psychopathology-related distress rather than specific anxiety problems (Perrin & Last, 1992).

More modern measures of childhood anxiety include the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), the Spence Children's Anxiety Scale (SCAS; Spence, 1998), and the Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1997). These newer questionnaires have been developed to measure anxiety in terms of the operational definitions that are currently employed by researchers and clinicians (Muris, 2007). Many of these newer measures used to assess child anxiety are downward extensions of adult measures of anxiety (McKay & Storch, 2011). Furthermore, many of them are based on the assumption that anxiety in children closely relates to the presenting features of anxiety in adults (Spence, 1998). These measures assess DSM-IV symptoms of anxiety and therefore can measure specific diagnostic criteria for anxiety disorders.

Although many of the symptoms that are specific to anxiety disorders are similar between adults and children, there are some anxiety disorders with key symptom distinctions. The majority of these differences are due to developmental differences between adults and children. Differences between adult and child anxiety symptoms will be discussed for the most common anxiety disorders in children.

Specific phobias (SP) are intense fears of certain, circumscribed objects, animals, situations, or environments. In order to be diagnosed with this kind of problematic fear, the fear must be present for at least 6 months with accompanying problematic avoidance or distress, along with a number of physiological symptoms including increased heart rate, trembling, and blood pressure. Children may express anxiety through crying, tantrums, freezing, or clinging whereas the anxiety in adults may be expressed through panic attacks or phobic avoidance (APA, 2000).

According to the DSM-IV-TR (APA, 2000), the central feature of separation anxiety disorder (SAD) is unrealistic and excessive anxiety upon separation or anticipation of separation from major attachment figures. SAD is the most common child anxiety disorder and is the only one that is unique to children whereby the disorder is based on specific child criteria as well as having a childhood onset (Eisen et al., 2011). The DSM-IV-TR requires evidence of at least three (of eight) separation-related symptoms that cause significant interference in social and academic functioning and continuous disturbance for at least one month. Some of the key symptoms of SAD include excessive worry about potential harm to oneself and/or major attachment figures and somatic complaints. Some common worries include getting kidnapped, being abandoned, and becoming ill, fear of being alone, and worry about calamitous events. Furthermore, some somatic complaints that have been reported include stomach aches, headaches, nausea, and vomiting (Eisen et al., 2011).

General Anxiety Disorder (GAD) is characterized by persistent and excessive worry about a number of events or activities, including school performance, their social relationships, and their health or the health of others (Weems & Varela, 2011). To be diagnosed with GAD according to DSM-IV-TR criteria, a person must exhibit excessive anxiety and worry for more days than not for at least six months and the person must find it difficult to control the worry. At least three of the following physical symptoms must accompany the anxiety or worry for adults, whereas for children only one of the following symptoms must be present: restlessness, being easily fatigued, difficulty concentrating, irritability, muscle tension, or sleep disturbance (APA, 2000). The types of

worries exhibited by children with GAD are more typical of adults and children frequently seek reassurance from parents, peers, and teachers (Kendall et al., 2004).

Social Phobia is characterized by a marked, persistent fear of one or more social situations. In children, anxiety must occur in peer settings with age-appropriate social relationships, such as same aged-peers, rather than solely with interactions with adults. In adults, a feared social situation that evokes anxiety can take the form of a panic attack. However, the anxiety is expressed in children through crying, tantrums, freezing, or shrinking from social situations. Another important distinction between social phobia in adults and in children is an adult recognizes that the fear is excessive or unreasonable, however this may be absent in children. Some symptoms of social phobia include stomachaches, flushing of the skin, a rapid heart rate, and chronic worry about being in social situations (APA, 2000).

Panic disorder is characterized by recurrent panic attacks. Panic disorder is less common in younger children compared to older children and adolescents. Panic attacks experienced by younger children are triggered by a specific event or stressor, whereas unexpected panic attacks are common in adults (APA, 2000).

In nonclinical environments, such as schools, many children who have anxiety symptoms may be overlooked because of internalizing symptoms that relate to anxiety (Tomb & Hunter, 2004). There is a large amount of research demonstrating that children who are not clinically diagnosed with an anxiety disorder still exhibit anxious symptoms (Bell-Dolan, Last, & Strauss, 1990). Sub-clinical symptoms of anxiety can be defined by experiencing at least one or more anxiety symptoms but does not meet the criteria for an anxiety diagnosis. Bell-Dolan et al. (1990) examined the prevalence of anxiety symptoms

in 62 non-referred children. Results indicated that between 9.8% and 30.6% of the non-referred children reported sub-clinical levels of overanxious disorder symptoms and 10.7% to 22.6% of children reported sub-clinical phobias. Bell-Dolan and his colleagues also determined a number of common anxious symptoms in non-clinical children that relate to specific anxiety diagnoses. For example, excessive need for reassurance is a symptom of generalized anxiety disorder, fear of heights relates to specific phobia, and fear of harm of an attachment figure is a symptom of separation anxiety disorder.

2.2 Barlow's Triple Vulnerability Model and Heritability of Anxiety Disorders

Anxiety is known as a cognitive-affective structure within our defensive system (Barlow, 2000; 2002). It differs from fear through the way in which danger is perceived. Danger is perceived as an actual, present, or impending threat and there is an uncontrollable focus on future threat or negative events. Anxiety is therefore considered to be a negative affective state that relates physiologically to helplessness, which can lead to uncomfortable and intolerable feelings (Suárez, Bennett, Goldstein, & Barlow, 2009).

According to Barlow (2000; 2002) the development of anxiety and its disorders is a function of an interaction of three dispositional factors, including biological, generalized psychological, and specific psychological vulnerabilities. How these three vulnerabilities contribute to the development of anxiety will be briefly discussed.

The first factor, biological vulnerabilities, is a genetic contribution to the development of anxiety and negative affect that can constitute a generalized heritable biological vulnerability (Suárez et al., 2009). Research has demonstrated that biological factors have a large role in the development of an anxiety disorder.

There has been significant familial aggregation for all anxiety disorders. Barlow (2002) demonstrated that lifetime prevalence rates in the first-degree relatives of those with panic disorder with agoraphobia range from 7.9% to 41%. Furthermore, meta-analytic analyses of family studies have yielded odds ratios predicting the association of anxiety disorders from 4.0 to 6.0 in first-degree relatives (Hettema, Neale, & Kendler, 2001). It has been demonstrated that anxious children are more likely to have anxious parents (Rosenbaum, Biederman, Bolduc, Hirshfeld, Faraone, & Kagan, 1992) and anxious parents have been shown to be more likely to have anxious children (Beidel & Turner, 1997; Black & Gaffney, 2008). Heritability is one component that has explained this link between child and adult anxiety. According to Bartels and Hudziak (2007) genetic factors have explained the largest proportion of variability in anxiety among children. Many twin studies have been conducted that show significant heritability estimates of anxiety disorders in children. Torgersen (1983) demonstrated a genetic component to panic disorders, resulting in a 15% and 45% concordance rate for dizygotic and monozygotic twins, respectively. In a twin study conducted by Eley et al. (2008) of children aged six to six and a half years of age the symptoms of specific phobia, separation anxiety, and social phobia were examined for genetic factors. Results indicated that the heritability estimate was significant for specific phobia. Similarly, Bolton et al. (2006) determined that specific phobia symptoms were most attributable to genetic factors. However, when the symptom presentations met diagnostic criteria, the largest proportion of variability in separation anxiety disorder was also due to genetic factors. A study conducted by Ogliari et al. (2006) assessed anxiety based on child and adult self-report measures. Results demonstrated that half of the variability was attributable to

genetic factors for social phobia, panic disorder, and separation anxiety disorder. Eley (2001) concluded that genetic influences account for one-third of the variance in childhood anxiety. Therefore, it is suggested by genetic studies that there is a genetic vulnerability in the development of anxiety disorders in general (Suárez et al., 2009). However, Suárez et al. (2009) also suggested that a genetic biological vulnerability would more likely be expressed when there are also psychological vulnerabilities present.

Another genetic contribution to anxiety disorders is Anxiety Sensitivity (AS). Anxiety sensitivity refers to a fear of anxiety, specifically a fear of anxiety-related sensations (Reiss & McNally, 1985). Anxiety Sensitivity has been shown to have a heritable component. For example, Stein, Jang, and Livesley (1999) conducted a twin study and determined that AS has a genetic contribution of about 45%. Jang, Stein, Taylor, and Livesley (1998) reported that in woman, genetic factors accounted for 37-48% of variance in AS, whereas environmental factors accounted for all the variance in AS for men.

Biological, or genetic, vulnerabilities can also contribute to both the development of anxiety and negative affect. These genetic contributions relate to personality traits and temperaments and serve as a biological diathesis for anxiety. One temperamental contribution to anxiety disorders is negative affect. Clarke and Watson (1991) proposed two dimensions of temperament including negative affect (or neuroticism) and positive affect (or extraversion). High negative affect has been shown to account for a large proportion of the variance in all the DSM-IV-TR anxiety disorders whereas low positive affect has been shown to relate to depression (Brown, Chorpita, & Barlow, 1998).

Therefore, for the purposes of this study, only negative affect will be examined. Negative

affect is defined by Keogh and Reidy (2000) as a stable, heritable tendency to experience a broad range of feelings such as worry, anxiety, self-criticisms, and a negative self-view. Negative affect can be further defined as a temperamental sensitivity to negative stimuli resulting in feelings of fear, anxiety, depression, guilt, and self-dissatisfaction (Clark, Steer, & Beck, 1994). There have been many family studies conducted that demonstrate genetic contributions to anxiety disorders, which may be facilitated by negative affect, resulting in the conclusion in the literature that anxiety symptoms aggregate in families (Turner, Beidel, & Costello, 1987).

Generalized psychological vulnerability is the second vulnerability that contributes to anxiety. It is a sense of impending uncontrollable and unpredictable threat or danger. Individuals who are faced with challenges that they perceive as threatening have an inability to cope and a sense of uncontrollability that causes negative emotional responses (Barlow, 2002).

Thirdly, specific psychological vulnerability includes early vicarious learning experiences that focus anxiety on certain circumstances, such as parents discussing events as threatening and dangerous and reinforcing avoidance or escape. For example, parents of socially anxious children can reinforce their children's tendency to avoid potentially threatening nature of social situations by communicating the potential danger of these situations (Suárez et al., 2009).

2.3 The Relationship between Parental and Child Anxiety

Offspring of adults with an anxiety disorder are significantly more likely to also receive an anxiety diagnosis, suggesting that anxiety disorders aggregate in families (Beidel & Turner, 1997). Top-down and bottom-up studies have been conducted and have

demonstrated a relationship between parent and child anxiety. Top-down studies have shown that children of anxious parents are at a higher risk of also developing an anxiety disorder, while bottom-up studies have shown that parents of anxious children also exhibit anxious symptoms and increased rates of anxiety disorders (Hughes, Furr, Sood, Barmish, & Kendall, 2009).

There has been a large amount of research demonstrating that children of anxious parents are more likely to develop an anxiety disorder. Turner et al. (1987) found that anxiety disorders of offspring were seven times more likely to be diagnosed with a DSM-III childhood anxiety disorder compared to children of “normal” parents. This finding is quite high compared to other findings within the literature. This could be attributed to the normal grade-school children that participated in the study. This group was recruited based upon the absence of a psychiatric diagnosis, and therefore may be considered more normal than most control groups. Therefore, the likelihood of the offspring of parents with anxiety disorders to be diagnosed with an anxiety disorder may be abnormally high, when compared to the normal group. Beidel and Turner (1997) examined the prevalence of anxiety disorders in children who had a parent who suffered from an anxiety disorder. Participants included offspring from a control group with no psychological diagnosis, offspring of parents who had a diagnosed anxiety disorder, offspring of parents who had major depression, and offspring of parents who had a comorbid anxiety and depression. The SCID and the K-SADS were administered to parents and children, respectively. Results indicated that the offspring of adults with an anxiety disorder were significantly more likely to also receive an anxiety diagnosis. Specifically, children of parents with a diagnosed anxiety disorder were 5.4 times more likely to also have an anxiety disorder.

In a study conducted by Merikangas, Dierker, and Szatmari (1998) children of parents with an anxiety disorder were assessed for also having an anxiety disorder. Results indicated a two-fold increased risk of anxiety disorders in offspring of parents with anxiety disorders, when compared to offspring of substance abusers or controls. Parents were administered the SADS to determine diagnostic status and children were administered the Schedule for Affective Disorders and Schizophrenia for School-Age Children-Epidemiologic Version (K-SADS-E) semi structured interview. Although both the SADS and the K-SADS-E assess severity of current anxiety symptoms, this study did not report any specific symptoms that were endorsed by both parents and children with anxiety disorders. Rather, diagnostic rates for specific disorders in children of parents with an anxiety disorder were reported as follows: any anxiety disorder (22.4%), GAD (12.1%), SAD (12.1%), social phobia (6.9%), simple phobia (6.9%), and panic disorder (1.7%).

Children of parents with panic disorder have been shown to have a high risk for anxiety disorders (Beidel & Turner, 1997). Epidemiological research demonstrates that children of parents with panic disorder either alone or comorbid with major depression disorder have higher rates of anxiety and depression (Biederman, Rosenbaum, Bolduc, Faraone, & Hirshfeld, 1991).

One limitation of many of the studies that examined the relationship between parental and child anxiety is that the majority of participants are Caucasian. However, it has also been demonstrated that the co-occurrence of anxiety disorders in parents and their children exists in an African American population. Chapman, Petrie, Vines and Durrett (2012), using a community-based sample, examined the relationship between

anxious African American parents and their biological children. The ADIS-IV and the ADIS-IV-C/P were administered to determine parent and child diagnoses, respectively. Results demonstrated that African American children who had a parent with an anxiety disorder were four times more likely to meet criteria for an anxiety disorder or other forms of psychopathology compared to children with a parent who did not have an anxiety disorder diagnosis. Interestingly, Chapman and colleagues (2012) also determined that the most frequent diagnoses in children of anxious parents were the same as the most frequent diagnoses in the anxious parent sample: specific phobia and social phobia. This study assessed the likelihood of child anxiety in children of anxious parents. However, the majority (91%) of the parents were mothers. Therefore, it is difficult to determine whether paternal anxiety was related to child anxiety given that the researchers did not examine maternal and paternal anxiety separately.

Bottom-up studies have also demonstrated a relationship between parental and child anxiety. Examining paternal anxiety separately from maternal anxiety is important given that some studies have suggested that the levels of anxiety in fathers of anxious children are not elevated compared to mothers (Cooper, Fearn, Willetts, Seabrook, & Parkinson, 2006; McClure, Brennan, Hammen, & Le Brocque, 2001).

McClure and colleagues (2001) examined the associations between child anxiety disorders and maternal and paternal anxiety disorders in a community sample. It was predicted that children of parents with anxiety disorders would be at an increased risk for anxiety disorders. Results demonstrated that there was a significant association between maternal anxiety disorder status and the prediction of offspring anxiety disorders. Specifically, children of mothers with anxiety disorders were more than two times more

likely to have met criteria for an anxiety disorder by the age of 15, compared to children of mothers with no psychiatric diagnosis. However, results demonstrated there was not a significant association between paternal anxiety disorder status and the prediction of offspring anxiety disorders.

Research demonstrates that anxiety symptoms can also be present in mothers of anxious children. Last, Strauss, and Francis (1987) conducted a study whereby mothers of children who were diagnosed with either separation anxiety disorder, overanxious disorder, or both were given the Structured Clinical Interview for DSM-III- Non-Patient Version. Results indicated that approximately one-half of the mothers presented with an anxiety disorder at the same time their child did. Results also demonstrated that 83% of mothers of children with diagnosed anxiety disorders had a lifetime history of an anxiety disorder. It is important to state that this study interviewed psychiatrically referred children. Therefore, although these results demonstrate a strong correlation between child anxiety disorders and maternal lifetime anxiety diagnosis, it is not necessarily a representative sample of the child anxiety population. Gifford, Reynolds, Bell and Wilson (2008) examined three groups of child-mother dyads including anxious children and their mothers, children with an externalizing disorder and their mothers, and non-clinical children and their mothers. Along with the administration of the ADIS-IV, children filled out the Spence Children's Anxiety Scale (SCAS) while mothers filled out the State-Trait Anxiety Inventory-Trait (STAIT), which are both self-report measures of anxiety symptoms for children and parents, respectively. Correlational analyses demonstrated that mothers of children with anxiety, along with mothers of children with externalising problems, had higher anxiety scores than mothers of non-clinical children. Furthermore, it

was stated that maternal and child anxiety symptoms were significantly correlated. Although both the SCAS and the STAIT have both been reported to be reliable and valid measures (Gifford et al., 2008), it is unknown which specific maternal and child symptoms of anxiety were correlated given that these findings were not reported. Similarly, in a study conducted by Burnstein and Ginsberg (2010) a similar correlation of anxiety symptoms between parents and their child was reported; however, the specific symptoms endorsed by both parents and children were not reported. Specifically, Burnstein and Ginsburg (2010) examined whether parent anxiety symptoms were significantly related to child anxiety in a community sample. Children of parents who had an anxiety disorder were compared to children of parents who did not have an anxiety disorder. To assess anxiety symptoms parents completed the Brief Symptoms Inventory (BSI) while children completed the Screen for Child Anxiety Related Emotional Disorders (SCARED). Results indicated that parent anxiety symptoms significantly and positively correlated with child anxiety. It was concluded child anxiety symptoms may influence parent symptoms as well as parent symptoms influencing child symptoms, therefore demonstrating a bi-directional influence. This is an example of the research in this area that demonstrates that there is both a top-down and bottom-up relationship between parent and child anxiety.

Hughes and colleagues (2009) examined specific anxiety diagnoses between mothers and their anxious children, along with fathers and their anxious children. The Anxiety Disorders Interview Schedule- Parent and Child Versions (ADIS-C/P) was administered to assess for DSM-IV anxiety disorders in children. Furthermore, the Anxiety Disorders Interview Schedule-IV-Lifetime Version (ADIS-IV-L) was

administered to parents to assess anxiety diagnoses in parents. Parents also completed a number of self-report measures that assessed anxiety symptoms. MANOVAs and regression analyses were conducted. Results demonstrated that lifetime maternal anxiety disorder was 3.40 times higher in the mothers of anxiety disordered children (56%) compared to mothers of children without a clinical diagnosis (27%). It was also determined that mothers of youth with an anxiety disorder were 2.90 times more likely (24%) to have lifetime diagnosis social phobia compared to mothers of non-disordered youth (10%). Significant associations between specific anxiety disorders in mothers and their anxiety-disordered children were also found. All significant associations were compared to the control group of mothers with children without an anxiety diagnosis. The odds of maternal lifetime panic disorder were 2.53 times higher in youth with separation anxiety disorder/panic disorder, the odds of maternal lifetime social phobia was 2.09 times higher in mothers of children with social phobia, the odds of maternal lifetime obsessive compulsive disorder was 7.61 times higher in mothers of children with an obsessive compulsive diagnosis, and finally the odds of maternal lifetime specific phobia was 2.55 times higher in mothers of children with a specific phobia diagnosis. Interestingly, lifetime paternal anxiety disorders were 2.33 times higher in fathers of youth with anxiety disorders compared to youth with no psychological disorder; however, there were no significant findings between specific child and father anxiety diagnoses. This finding is interesting given that the participation of mothers and fathers of anxiety-disordered children was approximately equivalent (165 mothers, 157 fathers). However, one limitation of this study is that although measures were completed by parents to examine anxiety symptoms, children were not given any assessment of their specific

symptoms. Although anxiety was correlated between parents and their children, it is unknown what symptoms of the specific anxiety diagnoses were similar between mothers and their children.

In a study conducted by Cooper and colleagues (2006) chi squared analyses demonstrated that two-thirds of mothers of children with an anxiety disorder had a current anxiety disorder, compared to one-quarter of mothers of the control children (no diagnosed anxiety disorder). Social anxiety disorder and panic disorder with agoraphobia were the most common current anxiety disorders in mothers of anxiety-disordered children. Social phobia was more common in mothers of children with social phobia compared to children with non-social forms of anxiety disorders. Also, childhood SAD in mothers of children with SAD was higher than any other form of anxiety disorder in children. The rate of current anxiety diagnosis in fathers of children with anxiety disorders was not significantly elevated compared to fathers of control children; however, the rate of a lifetime anxiety disorder was significantly elevated. Also, the only specific anxiety diagnosis that was elevated in fathers of anxiety-disordered children was social phobia. This association between current child anxiety and parent anxiety was stronger between mothers and their children compared to fathers and their children. However, it is important to note that it could be possible that these findings were due to the fact that only 60% of fathers were assessed for an anxiety disorder during this study.

As indicated above, research has demonstrated a stronger correlation between maternal and child anxiety compared to paternal and child anxiety. Hughes and colleagues (2009) offer some explanations for this finding, such as maternal modelling and genetics. Specifically, it was suggested that maternal modelling of disorder-specific

catastrophic thinking, such as maternal anxious self-talk and anxious avoidance, can help explain the similarity between maternal and child anxiety diagnoses. Also, it is suggested that due to the secondary role that fathers have in child rearing, children may spend less time observing anxious behaviours in fathers versus mothers (Hughes et al., 2009). Due to stronger correlations between maternal versus paternal anxiety and child anxiety in the literature, only maternal anxiety will be analyzed in the current study.

2.4 The Relationship between Parent and Child Anxiety Sensitivity

Anxiety sensitivity has been shown to have a genetic component. For example, East, Berman, and Stoppelbein (2007) conducted a study examining the relationship between parental and offspring anxiety sensitivity. The Anxiety Sensitivity Index (ASI) and the SCID were used to measure anxiety sensitivity in undergraduate university students and their biological parents. Correlational results indicated that parental anxiety sensitivity is related to offspring anxiety sensitivity, as well as anxiety. In this particular study, familial transmission of anxiety sensitivity was limited to fathers, suggesting that the genetic transmission of anxiety sensitivity is associated with the Y chromosome (East et al., 2007). Stein et al. (1999) determined that anxiety sensitivity has a strong heritable component when monozygotic and dizygotic twins were examined. The majority of twins that participated in this study were female (134 monozygotic sister pairs out of 179 and 94 dizygotic sister pairs out of 128). Therefore, although mothers and their offspring were not examined in this study, there is evidence that anxiety sensitivity has a heritable component in females. Pollock et al. (2002) conducted a study which examined the relationship between parental anxiety and anxiety sensitivity, anxiety disorders and symptoms in children. Participants included children of probands either diagnosed with

an anxiety disorder and a substance abuse disorder, an anxiety disorder, or a substance-abuse disorder. Both diagnostic assessments and self-report measures were used. Regression analyses demonstrated that familial risk for anxiety moderated the association between anxiety sensitivity and anxiety symptoms. Pollock and colleagues (2002) concluded that anxiety sensitivity may be a vulnerability factor for the development of anxiety symptoms and disorders when interacting with other biological and environmental risk factors. Therefore, evidence demonstrates that anxiety sensitivity has a heritable component and transmission from parent to child may be one factor in the development of anxiety symptoms and disorders in children.

2.5 The Relationship between Parent and Child Behavioural Inhibition

As previously mentioned negative affect can be defined as a temperamental sensitivity to negative stimuli resulting in feelings of fear, anxiety, depression, guilt, and self-dissatisfaction (Clark, Watson, & Mineka, 1994). This temperamental style has been linked to behavioral inhibition, which has been shown to have a genetic component. For example, Kagan (1994) attributed physiological correlates of behavioural inhibition, such as the ones previously mentioned, to biological predispositions such as brain circuits originating in the amygdala. Robinson, Kagan, Reznick, and Corley (1992) demonstrated that temperament has a strong heritable component of 0.50. In a study conducted by Rosenbaum et al. (1991) hypothesized that whereas behavioral inhibition is associated with anxiety disorders, there should be an increased risk for anxiety disorders in relatives of children with behavioral inhibition. Rosenbaum and colleagues assessed both uninhibited and inhibited children, and their first-degree relatives using diagnostic

interviews. Results from ANOVAs demonstrated that there were elevated risks in relatives of inhibited children compared with relatives of normal controls. These results support the theory that behavioral inhibition in children may be related to anxiety in their parents.

Chapter Three

Overview of Current Study

The purpose of this study was to determine whether there are similarities between anxious symptoms that exist in mothers and their children. Specifically, symptoms of maternal anxiety were analyzed and compared to symptoms of child anxiety. However, before determining if there was a relationship between specific symptoms of parent and child anxiety, items on both child and parent measures were compared to determine which items assess the same symptoms. This was conducted in Study One.

Although the literature reveals there is an association between maternal and child anxiety (Gifford et al., 2008; Hughes et al., 2009; Last et al., 1987), there are few studies that explicitly indicate those specific anxiety symptoms that are similar in both mothers and their school-aged children. Therefore, specific anxious symptoms that are endorsed by both mothers and their children were identified in Study Two.

Chapter Four: Study One

4.1 Purpose

The main purpose of this study was to determine if a set of items could be identified from three pairs of adult and child versions of anxiety measures that assessed similar symptoms of anxiety in parent and child. Specifically, one purpose of this study was to determine if items on the Anxiety Sensitivity Index and the Child Anxiety Sensitivity Index assessed similar symptoms of anxiety. Another purpose of this study was to determine if items on the Positive and Negative Affect Schedule and the Positive and Negative Affect Schedule- Child Version assessed similar symptoms of anxiety. The final purpose of this study was to determine if items on the Depression and Anxiety Scale, 21-Item Version and the Revised Child Anxiety and Depression Scale assessed similar symptoms of anxiety.

4.2 Hypotheses

1. One purpose of this study was to determine which items on the ASI and the CASI measure the same anxiety symptoms. It was hypothesized that all corresponding items on the ASI and the CASI assess similar anxiety symptoms.
2. Another purpose of this study was to determine which items on the PANAS and the PANAS-C measure the same anxiety symptoms. It is hypothesized that there would be ten negative and affect symptom pairs on the PANAS and the PANAS-C that would assess the same anxiety symptoms.

3. The third purpose of this study was to determine which items on the DASS-21 and the RCADS measure similar anxiety symptoms. It is hypothesized that there would be eleven pairs of symptoms that measure items that assess the same anxiety symptoms.

4.3 Method

Participants. Seven students from Memorial University of Newfoundland participated in this study. All students were members of the Memorial Institute for Research and Intervention in Anxiety and Mood (MIRIAM). Students were either undergraduate or graduate students in the Faculty of Science, Psychology Department. All members were given instructions and asked to participate; however, participation in this study was voluntary and therefore only seven members participated. To allow raters to be unknown, participants did not have to include any identifying information for participation in this study.

Parent Self-Report Measures of Anxiety

Depression, Stress, and Anxiety Scales, 21-item version (DASS-21, Bieling, Cox, Enns, & Swinson, 1998). The DASS-21 is a shortened version of the 42-item original Depression, Stress, and Anxiety Scales (DASS, Lovibond & Lovibond, 1995). It is a self-report measure that consists of 21 items that assesses symptoms associated with anxiety, depression, and stress in adults. There are seven items corresponding to the three different scales: anxiety, depression, and stress. Respondents can choose from a scale of zero to three, corresponding to never to almost always. Scores on the depression scale range from zero to four, indicating a normal range, to 14 and up, indicating an extremely severe range. Scores on the anxiety scale range from zero to three, indicating a normal range, to ten and up, indicating an extremely severe range. Finally, scores on the stress scale range

from zero to seven, indicating a normal range, to 17 and up, indicating an extremely severe range. Henry and Crawford (2005) tested the reliability of the DASS-21 with a nonclinical sample. Results indicated that the internal consistency reliability of this measure was .82 for the anxiety scale. Furthermore, Henry and Crawford (2005) demonstrated high convergent validity between the depression scale and SAD depression (0.78), between the anxiety scale and the SAD anxiety (0.72), and between the stress scale and NA (0.67). For the purposes of this study, only the anxiety scale of the DASS-21 was analyzed.

Anxiety Sensitivity Index (ASI, Reiss, Peterson, Gursky, & McNally, 1986).

The ASI is a 16-item self-report measure for adults that assess a person's beliefs about the social and somatic consequences of anxiety symptoms (Reiss et al., 1986). Reiss and colleagues (1986) demonstrated that the ASI has adequate test/retest reliability, specifically .74 for women and .71 for men. Furthermore, Peterson and Reiss (1987) obtained an internal consistency reliability of .88 and a high validity (.71) with the Fear Survey Schedule. The ASI is therefore considered to be a reliable instrument.

Positive and Negative Affect Schedule (PANAS, Watson, Clark, & Tellegen, 1988).

The PANAS assesses positive and negative affect in adults. It is composed of 20-items, 10 items which assess positive affect (PA), which reflects the extent to which a person feels enthusiastic, active, and alert, and 10 items which assess negative affect (NA), a factor of emotional distress that measures fear, sadness, anger, and guilt. It was reported by Crawford and Henry (2004) that the PANAS had a high internal consistency reliability for both PA and NA scales (.89 and .85, respectively). Furthermore, patterns of relationships between the PANAS and the DASS and HADS were consistent with

tripartite theory. The measure is therefore considered to be valid (Crawford & Henry, 2004). For the purposes of this study, only negative affect items on the PANAS will be analyzed.

Child Self-Report Measures of Anxiety

Revised Child Anxiety and Depression Scale (RCADS, Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). The RCADS is a self-report measure for children. It is an adaptation of the Spence Children's Anxiety Scale (SCAS; Spence, 1998) and consists of 47 items corresponding to DSM-IV criteria for childhood depression and anxiety. The RCADS measures symptoms of SAD, SP, OCD, PD, GAD, and MDD. Children rate how often each item applies to them using a 0 to 3 response scale corresponding to *never*, *sometimes*, *often*, and *always*. Chorpita et al. (2000) demonstrated an improvement in consistency of the RCADS (alpha coefficients between .73 and .82) relative to the SCAS. Good convergent validity coefficients were demonstrated between the RCADS and the CDI and the RCMAS (Chorpita et al., 2000). For the purposes of this study, only the anxiety scale will be analyzed. Specifically, the composite anxiety score will be analyzed. A high anxiety composite score indicates that more anxiety symptoms are present.

Child Anxiety Sensitivity Index (CASI, Silverman, Fleisig, Rabian, & Peterson, 1991). The CASI is a modified version of the ASI (Reiss et al., 1986). This CASI consists of 18 items that measure anxiety sensitivity by asking children to state how aversively they view anxiety symptoms. The child rates the presence of anxiety symptoms on a 3-point scale: *none* (1), *some* (2), or *a lot* (3). Some of the questions from the ASI were modified to allow for better understanding by children. For example, "It scares me when I am nauseous" was changed to "It scares me when I feel like I am going to throw up".

Silverman et al. (1991) demonstrated a .76 test-retest reliability for a nonclinical sample with the CASI. Also, Silverman et al. (1991) demonstrated strong validity between both the Fear Survey Schedule for Children (.74) and Stait-Trait Anxiety Inventory (.60) for Children. Furthermore, item correlations are similar to those reported for the ASI by Peterson and Reiss (1987). Therefore, this evidence suggests that items on the CASI and ASI are comparable.

Positive and Negative Affect Schedule- Child Version (PANAS-C, Laurent et al., 1999). The PANAS-C is a self-report measure that assesses positive and negative affect in children. Items from the PANAS were evaluated on the basis of children's ability to read and understand the items. The resulting PANAS-C consists of 20 items, ten of which are positive mood items and ten of which are negative mood items. The items are measured on a 5-point Likert-scale ranging from "very slightly or not at all", "a little", "moderately", "quite a bit", and "extremely". Laurent and colleagues (1999) reported alpha coefficients of .94 and .92 for the scale development and replication samples. They also demonstrated significant validity correlations between the Positive Affect scale and the Children's Depression Inventory (-.42), the Negative Affect scale and both the Children's Depression Inventory (.59) and the Trait Anxiety Scale of the Stait-Trait Anxiety Inventory for Children (.62). Furthermore, Hughes and Kendall (2009) demonstrated strong internal consistency when compared to other child anxiety measures (MASC, RCMAS, and CDI).

Procedure

To determine which symptoms were similar between adult and child anxiety measures, a sample of undergraduate and graduate students from the MIRIAM lab were

surveyed. During a MIRIAM lab meeting the primary researcher gave lab members an overview of the study, the possible benefits of participating in the study, and the instructions if interested in participating in the study. The primary researcher distributed copies of all parent and child questionnaires to all members present who indicated they were interested in participating (See Appendix II). Following the lab meeting, instructions were sent via email stating the following:

You will be comparing three sets of measures including The Anxiety Sensitivity Index (ASI) with the Child Anxiety Sensitivity Index (CASI), The Positive and Negative Affect Schedule with the Positive and Negative Affect Schedule (Child Version) and The Depression and Anxiety Scale (DASS-21) with the Revised Child Anxiety and Depression Scale (RCADS).

You will receive two booklets, one with adult measures and one with child measures. The adult versions are in the booklet with the first measure titled "ASI" and the child versions are in the booklet with the first measure titled "RCADS". Please look for similar symptoms between the individual sets of measures indicated above. If you find an item on the child measure that matches with specific anxious symptoms on the adult measure please write the item number on the left hand side of the corresponding item on the adult measure. For example, if item #2 on the CASI corresponds with item #5 on the ASI please write number 2 next to item 5 on the ASI.

All items on the child versions may not correspond with a similar symptom on the adult measure. Also, one child item may correspond with more than one item on the adult measure. If this is the case, please write both numbers next to the corresponding item. All corresponding items should be written on the adult measures only, please do not write on the child measures.

Three envelopes were left in the MIRIAM graduate office. One envelope contained packages of blank parent measures, another envelope contained packages of blank child measures, and a final envelope was empty for raters to return the packages once items were compared. A total of seven packages were collected from MIRIAM lab members and compared for similar correspondences between adult and child items. If four or more

MIRIAM students indicated that a child symptom was similar to an adult symptom, this item was subsequently analyzed to determine if there was a significant relationship between child report on this item and parent report on this same item.

4.4 Results

In order for an anxiety symptom on the adult questionnaire to be similar to an anxiety symptom on the child questionnaire four or more raters had to indicate they were similar.

The results for hypothesis one which compared anxiety symptoms between the RCADS and the DASS-21 are shown in Table 5.1 (Appendix I). Raters determined that there were a total of eight items on the DASS-21 that were similar to items on the RCADS, resulting in a total of eight symptom pairs.

The results for hypothesis two which compared anxiety sensitivity symptoms between the ASI and the CASI are shown in Table 5.2 (Appendix I). Raters determined there were a total of 19 items on the ASI that were similar to items on the CASI, resulting in a total of 19 symptom pairs.

Finally, the results for hypothesis three which compared negative affect symptoms between the PANAS and the PANAS-C are shown in Table 5.3 (Appendix I). Raters determined there were a total of 10 items on the PANAS that were similar to items on the PANAS-C, resulting in a total of 10 symptom pairs.

Chapter Five: Study Two

5.1 Purpose

The first purpose of this study was to examine whether there was a statistically significant correlation between total anxiety scores between mothers and their child, based on the DASS-21 and the RCADS. The second purpose of this study was to determine if there was a positive correlation between the set of items on the DASS-21 and the RCADS that were indicated by raters in Study One to assess similar anxiety symptoms in parent and child.

The third purpose of this study was to examine whether there was a statistically significant relationship between total anxiety sensitivity scores in mothers and their children, as measured by the ASI and the CASI. The fourth purpose of this study was to determine if there was a positive correlation between the set of items on the ASI and the CASI that were indicated by raters in Study One to assess similar anxiety sensitivity symptoms in parent and child.

The fifth purpose of this study was to examine whether there is a statistically significant relationship between total negative affect scores in mothers and their children as measured by the PANAS and the PANAS-C. The final purpose of this study was to determine if there was a positive correlation between the set of items on the PANAS and the PANAS-C that were indicated by raters in Study One to assess similar negative affect symptoms in parent and child.

5.2 Hypotheses

1. It was hypothesized that there would be a significant positive correlation between total anxiety in mothers and their child as measured by the DASS-21 and the RCADS.
2. It is hypothesized that there would be a significant positive correlation between items rated in Study One as measuring similar anxiety symptoms on the DASS-21 and the RCADS.
3. It is hypothesized that there would be a significant positive correlation between total anxiety sensitivity in mothers and their children as measured by the ASI and the CASI.
4. It is hypothesized that there would be a significant positive correlation between items rated in Study One as measuring similar anxiety sensitivity symptoms on the ASI and the CASI.
5. It is hypothesized that there would be a significant positive correlation between total negative affect in mothers and their children as measured by the PANAS and the PANAS-C.
6. It is hypothesized that there would be a significant positive correlation between items rated in Study One as measuring negative affect symptoms on the PANAS and the PANAS-C.

5.3 Method

Participants. Fifty-eight children from the Eastern School District of Newfoundland (ESDNL) in St. John's, Newfoundland and their mothers participated in

this study. Students were recruited with the help of principals, vice principals, guidance counsellors, and classroom teachers.

The age of the child participants ranged from seven to 17 years of age (M= 12 years, 5 months, SD= 3 years, 3 months), with a total of 57 Caucasian participants and one with “other” ethnicity. Fifty-eight mothers, who ranged in age from 30 to 53 years (M=42 years, 5 months, SD= 5 years, 2 months), agreed to participate in this study. All mothers were Caucasian, with the exception of one which was of “other” ethnicity.

Parent Self- Report Measures of Anxiety.

Demographic Questionnaire. This questionnaire was completed by each mother. It included demographic fill-in-the blank and multiple choice questions pertaining to the parents, child, and extended family members. It also asked questions regarding age, ethnicity, culture, education, marital status, and income.

Depression, Stress, and Anxiety Scales, 21-item version (DASS-21). See description in Study One.

Anxiety Sensitivity Index (ASI). See description in Study One.

Positive and Negative Affect Schedule (PANAS). See description in Study One.

Child Self-Report Measures of Anxiety

Revised Child Anxiety and Depression Scale (RCADS). See description in Study One.

Child Anxiety Sensitivity Index (CASI). See description in Study One.

Positive and Negative Affect Schedule- Child Version (PANAS-C). See description in Study One.

Procedure. Ethical approval for this study was obtained by the Memorial University Human Investigation Committee and the Eastern School District of Newfoundland (ESDNL). With the help of graduate and undergraduate psychology students from the Memorial Institute for Research and Intervention in Anxiety and Mood (MIRIAM) at Memorial University of Newfoundland, principals and guidance counsellors throughout the Eastern School District of Newfoundland were contacted to recruit participants for this study. MIRIAM lab members proceeded into classrooms that were arranged by school administrators to explain the purpose of the study and invite students to participate.

For students who wanted to participate, a letter (See Appendix IV) and consent form (See Appendix V) was sent home for parents to sign, describing the purpose, method, and potential benefits of participating in the study. Students were asked to return the signed parental consent form to their school in order to participate in the study.

Once all consent forms were collected, the guidance counselor and principal participants arranged participants to be taken out of class to participate in the study. MIRIAM lab members returned to schools to facilitate data collection.

Before the study began, students were made aware that participation in the study was voluntary and they could stop at any time. Once students gave written assent (See Appendix VI) (parental consent must have been given prior to this), they were asked to fill out a brief background questionnaire and the three self-report measures indicated above (See Appendix VIII). This process took approximately 20 minutes to complete.

Once child participation was concluded, parent packages (See Appendix VII) were mailed to parent participants that included a background questionnaire, parental

measures including the DASS-21, RCADS-P, PBA-Q, ASI, PANAS, and a return envelope that they were asked to complete and return to the primary investigator at Memorial University.

Each questionnaire package was coded with a random number. The number assigned to the child was also assigned to the parent. This allowed names to be removed from the packages to ensure participant anonymity. Furthermore, by assigning the child/parent dyad the same number comparisons of parent and child measures could be conducted.

Bivariate correlational analyses were conducted to examine the degree of correspondence between those items that were rated as similar by the sample of seven raters.

5.4 Results

Total Maternal and Child Anxiety Comparisons. To test hypothesis one, that there would be a significant positive relationship between maternal and child total anxiety scores, a correlational analysis between parental and child self-report anxiety measures was conducted. See Table 5.5. It was demonstrated that there was not a significant correlation between maternal and child total anxiety as measured on the DASS-21 and the RCADS ($r=0.08, p>.05$). A correlational analysis between total anxiety sensitivity in mothers and total anxiety sensitivity as measured by the ASI and the CASI was used to test hypothesis three. It revealed that there was not a significant correlation between anxiety sensitivity in mothers and their children ($r= 0.01, p>0.05$). Finally, to test hypothesis five, a comparison between total negative affect scores in mothers and their

children was conducted. Results demonstrated that there was not a significant correlation between maternal and child negative affect ($r=0.215, p>0.05$).

Anxiety Symptom Comparisons. The first symptom comparisons tested hypothesis two by comparing symptoms between the DASS-21 and the RCADS. There were a total of eight pairs of symptoms compared. See Table 5.6. It was demonstrated that only one pair of symptoms between mother and child measures significantly correlated. The item "I experienced trembling" on the DASS-21 showed a statistically significant positive relationship with the item "When I have a problem, I feel shaky" on the RCADS ($r=0.31, p<0.05$).

To test hypothesis four which examined if there were similarities between anxiety sensitivity symptoms between mothers and their child, correlational analyses were also conducted. See Table 5.7. A total number of 19 pairs of symptoms from the ASI were compared to items on the CASI. Results demonstrated that there were three similar symptoms that significantly correlated. The symptom "when I cannot keep my mind on a task, I worry that I might be going crazy" on the ASI was significantly related to the symptom "when I cannot keep my mind on my schoolwork, I worry that I might be going crazy" on the CASI ($r=0.31, p<0.05$). Also the symptom "It scares me when I feel faint" on the ASI significantly correlated with the symptom "It scares me when I feel like I am going to faint" on the CASI ($r=0.28, p<0.05$). Finally, the symptom "It scares me when I am unable to keep my mind on a task" on the ASI also significantly correlated with the symptom "It scares me when I can't keep my mind on my schoolwork" on the CASI ($r=0.26, p<0.05$).

Finally, to test hypothesis six, correlational analysis between symptom pairs on the PANAS and PANAS-C were conducted. See Table 5.8. A total number of eight negative affect symptom pairs were compared between the PANAS/PANAS-C. When symptoms pertaining to negative affect items on the PANAS were compared to negative affect items on the PANAS-C results indicated that two pairs of items significantly correlated. There was a positive relationship between “scared” on the PANAS and “frightened” on the PANAS-C ($r=0.38, p<0.05$). Also, “jittery” on the PANAS significantly correlated with “nervous” on the PANAS-C ($r=0.40, p<0.05$).

Chapter Six: Discussion

6.1 Overview of Results

The main objective of Study One was to determine if a set of items could be identified from three pairs of adult and child versions of anxiety measures that assessed similar symptoms of anxiety in parent and child. Raters from MIRIAM compared symptoms between adult and child measures. If four or more raters indicated that symptoms were similar between pairs of measures, items were considered statistically comparable. Results indicated that a set of eight pairs of similar anxiety symptoms between the DASS-21 and the RCADS could be compared, a set of nineteen pairs of similar anxiety sensitivity symptoms between the ASI and the CASI could be compared, and a set of ten pairs of similar negative affect symptoms between the PANAS and the PANAS-C could be compared. This allowed for statistical comparisons to be made between the pairs of symptoms, to determine if similar anxiety symptoms exist between mothers and their children.

The main objective of Study Two was to determine if there was a relationship between child anxiety and maternal anxiety both at the level of composite anxiety scores and at the specific symptom level. It was hypothesized that there would be a significant positive correlation between maternal and child anxiety, maternal and child anxiety sensitivity, and maternal and child negative affect. Results from this study indicated that there were not statistically significant relationships between total maternal and child anxiety, total maternal and child anxiety sensitivity, or total maternal and child negative affect.

Although there was not a significant positive correlation between maternal and child anxiety, anxiety sensitivity, and negative affect when analyzed at the global level, results indicated that there were significant findings at the specific level for a subset of anxiety, anxiety sensitivity, and negative affect symptoms.

Another objective of this study was to determine if anxiety symptoms were similar in children and their mothers in a nonclinical sample. It was hypothesized that anxiety symptoms reported by mothers would be statistically similar to anxiety symptoms reported by their children. Results demonstrated a total of one statistically significant correlation between anxiety symptoms in mothers, reported on the DASS-21, and their children, reported on the RCADS. When anxiety sensitivity symptoms were correlated results indicated that a total of three anxiety symptoms reported by mothers on the ASI and their children, indicated on the CASI. Finally, a total of two negative affect symptoms significantly correlated between mothers and their children, indicated on the PANAS and PANAS-C.

Overall, these symptoms were either physical or cognitive in nature. Some of the symptoms asked about physical sensations, such as trembling, feeling shaky, jittery, and feeling faint. Other symptoms that correlated included cognitions such as worry about school work or staying on a task. These symptoms will be discussed in more detail in the following sections.

6.2 Evidence for Similarities between Anxiety Symptoms in Mothers and Children

The significant relationship between maternal and child anxiety symptoms, anxiety sensitivity symptoms, and negative affect symptoms can be explained both

genetically and psychologically in relation to Barlow's Tripartite Vulnerability Model of Anxiety.

Very broadly speaking, genes account for approximately 30% of the variance in child anxiety (Eley & Gregory, 2004; Gregory & Eley, 2007). According to Barlow (2002), Ollendick (1998) and Rapee (2002), a biological vulnerability may underlie the development of anxiety disorders. The first vulnerability proposed by Barlow (2002) was a genetic or biological vulnerability which proposed a genetic transmission of anxiety. Although the results of this study did not demonstrate a positive correlation between maternal and child anxiety when examined globally, it did demonstrate that there are some anxiety symptoms that were similar in both mothers and their children. Although it is unknown if these similarities have a biological basis, it can be proposed that a behaviourally inhibited temperamental style, negative affect, and anxiety sensitivity had important influences on why there was a positive relationship between these symptoms.

6.3 Behavioral Inhibition and Negative Affect

Behavioural Inhibition (BI) is a temperamental style characterized by increased physiological arousal and fear of novel stimuli (Kagan, 1994). Research has demonstrated that BI is a risk factor for predicting anxiety symptoms (Biederman et al., 2001). Biederman, and colleagues (1991) stated that heightened physiological and emotional reactivity and poor regulation can cause an increased risk for the development of anxiety symptoms and disorders. Behavioural Inhibition has been shown to have a strong genetic basis (DiLalla, Kagan, & Reznick, 1994).

According to Lonigan and Phillips (2001), there are eight physiological aspects comprising the behavioural inhibition temperamental style. Some of these components of

behavioural inhibition include increased heart rate or heart rate variability, blood pressure, and muscle tension. Lonigan and Phillips (2001) stated that children who are behaviorally inhibited exhibit behaviours that are consistent with high negative affect such as distress, fear, and an inhibited approach.

The results of the comparison of negative affect on the PANAS and the PANAS-C demonstrated that there was a positive correlation between the symptom “scared” on the PANAS and the symptom “frightened” on the PANAS-C. This demonstrates that children who reported being frightened may show signs of behavioral inhibition whereas they reported behaviours of fear and distress, which are behaviors of high negative affect as indicated by Lonigan and Phillips (2001). Results also demonstrated a positive correlation between “jittery” on the PANAS and “nervous” on the PANAS-C. “Jittery” may indicate a heightened physiological arousal such as increased heart rate or muscle tension whereas “nervous” may be indicative of an inhibited approach to avoid nervous situations. Interestingly, according to Tellegen (1985) high negative affect can be characterized by feelings such as distress, fearfulness, hostility, jittery, nervousness, and scornfulness. The results of the current study indicate that mothers and their children exhibit symptoms of these high negative affect characteristics indicated by Tellegen (1985), specifically jittery and nervous feelings. Due to these significant correlations between physiological symptoms in mothers and their children, this may support the theory that a behaviorally inhibited temperamental style, as defined by Kagan (1994) may have a heritable component. This may support the conclusion that negative affect has a genetic component.

6.4 Anxiety Sensitivity

The transmission of anxiety sensitivity from parent to child can help explain the significant findings of symptom pairs that assessed anxiety sensitivity in mothers and their children in this study. Anxiety sensitivity (AS) refers to fear of internal anxiety symptoms arising from the belief that anxiety symptoms will have devastating social, mental, or physical consequences (Reiss, 1991). AS has been shown to have a genetic component; research indicates that almost one-half of the variance in anxiety sensitivity is accounted for by genes (Stein et al., 1999). It has also been identified as a cognitive risk factor for the development of anxiety disorders (Reiss, 1991). This study examined anxiety sensitivity in mothers and their children using the ASI and the CASI. Results indicated there are three symptoms significantly correlated that demonstrated common cognitive subscale symptoms in both mothers and their children. The symptom “when I cannot keep my mind on a task, I worry that I might be going crazy” on the ASI correlated with the symptom “when I cannot keep my mind on my schoolwork, I worry that I might be going crazy” on the CASI. Furthermore, another symptom pair between mothers and their children that significantly correlated and fall under the mental incapacitation concern subscale included “it scares me when I can’t keep my mind on a task” on the ASI and “it scares me when I can’t keep my mind on my schoolwork” on the CASI (Drake & Kearney, 2008). Finally, the symptom “it scares me I feel faint” on the ASI and the symptom “it scares me when I feel like I am going to faint” on the CASI fall under the unsteady concerns subscale as indicated by Drake and Kearney (2008). Therefore, these results indicated that ASI mental concerns correlate with CASI mental concerns and ASI unsteady concerns significantly relate to CASI unsteady concerns. The

study mentioned previously conducted by East et al. (2007) demonstrated a positive relationship between AS only in fathers, not mothers, and child anxiety. Therefore, results may have demonstrated a larger number of significantly correlated AS items correlated between parents and their children if both mothers and fathers were assessed. It has been proposed that some parents may transmit a specific genotype that predisposes a child toward higher biological arousal and problematic temperament, thereby demonstrating anxiety sensitivity to have a genetic component (DiLalla et al., 1994). However, due to the inconsistencies of AS correlations between parent dimensions and their children in nonclinical samples, this is an area for further research.

Although AS has been shown to have a genetic component, parents who provide feedback by monitoring their physical status or describing negative consequences of somatic complaints can also enhance child anxiety (Dadds & Barrett, 1996) and anxiety sensitivity. If children hear negative feedback, it may cause them to experience fear about their own anxiety-symptoms (Drake & Kearney, 2008). This is a form of vicarious learning and is an example of Barlow's (2002) specific psychological vulnerability that contributes to the development of anxiety. If anxious parents purposely or unintentionally model anxiety-based reactions in front of their children, it may cause children to learn these problem-solving patterns and thus magnify their own anxiety symptoms (Drake & Kearney, 2008). Therefore, it is possible that children of mothers who model fear in anxious situations may learn to also become fearful when feelings of anxiety arise.

6.5 Physiological Hyperarousal and Anxiety

According to Lonigan and Phillips (2001) anxiety is characterized by physiological hyperarousal. Clark and colleagues (1994) examined all DSM-IV anxiety

disorders and demonstrated that all anxiety disorders were associated with heightened physiological hyperarousal. Results from this study demonstrated a positive correlation between the physiological symptom “I experienced trembling” on the DASS-21 and “When I have a problem, I feel shaky” on the RCADS. Both of these symptoms fall under the physiological subscale when diagnosing anxiety disorders. Although only one significant correlation was found between these two measures, it is likely that both mothers and their children who experience symptoms of anxiety may have similar physiological symptoms. However, this conclusion should be interpreted with caution, and further research into the subtypes of anxiety symptoms between mothers and their children is needed, given that there was only one similar physical anxiety symptom found that significantly correlated between mothers and children.

Although results demonstrated significant correlations between some anxiety symptoms measured by self-report questionnaires, there may be developmental and methodological reasons that may explain why there were a low number of significant correlations.

6.6 A Developmental Approach to Anxiety

Anxiety symptoms and disorders in childhood appear to be at risk for other anxiety disorders in adolescence or adulthood (Last, Perrin, Hersen & Kazdin, 1996). There is a large body of research demonstrating that anxiety symptoms can change throughout the course of development. According to Weems and Costa (2005) the nature of anxiety changes across development and the extent to which specific symptoms are associated with anxiety also change with age (Boylan, Miller, Vaillancourt, & Szatmari, 2011). For example, Last et al. (1996) found that three to four years following initial

diagnosis for clinically-referred children and adolescents, 82% no longer met the criteria for their anxiety disorder. Therefore, there is evidence that anxiety disorders in children tend to change over time and can develop into new anxiety disorders (Craske, 1999). Weems and Costa (2005) assessed anxiety symptoms in children aged four to seven years of age for eight years. Results indicated that specific expression of fears and worries changed with development. Furthermore, in a study conducted by Francis, Last, and Strauss (1987) younger children presented with different Separation Anxiety Disorder symptom constellations than older children. Craske (1999) suggested that although anxiety is likely to continue into adulthood, specific disorders, along with clinical and subclinical status of the anxiety disorder may shift overtime.

According to Vasey and Dadds (2001) anxiety disorders can emerge from multiple deviant developmental pathways. In other words, it has been proposed that there are multiple pathways associated with many anxiety disorders. This concept has been termed “equifinality” in developmental psychology research and states that a diversity of paths may lead to the same outcome. Any given factor therefore may play a different role at a different point in the development of an anxiety disorder. According to Garber and Strassberg (1991) anxiety symptoms can take different forms at different ages which may increase the potential for clinical manifestations of anxiety disorders to vary with development. This poses questions regarding applying adult-based symptoms of anxiety disorders across the lifespan, the approach that is taken to diagnosis anxiety disorders defined by the DSM-IV. There have been a number of studies that have demonstrated anxiety symptoms vary and may take different forms according to age. Research demonstrates that separation anxiety symptoms and animals fears are predominant in

youth ages six to nine years, generalized anxiety symptoms and fears concerning danger and death are predominant in youth aged 10-13 years, and social anxiety symptoms and social performance related fears are predominant in youth aged 14-17 years (Westenberg, Siebelink, & Treffers, 2001; Warren & Sroufe, 2004). Garber and Strassberg (1991) offer an example of the difference in avoidance response in children to provide evidence for this. Young children may exhibit avoidance symptoms by hiding whereas older children may participate in self-distraction. Another explanation of this developmental perspective of anxiety relates to how anxiety disorders change over age.

It is also possible that some anxiety disorders and symptoms in childhood can carry significant risk for other anxiety disorders during childhood or adulthood (Cole, Peeke, Martin, Truglio & Serocynski, 1998; Last et al., 1996; Orvaschel, Lewinsohn, & Seeley, 1995). For example, Westenberg, Siebelink, Warmenhoven, and Treffers (1999) reported that separation anxiety disorder (SAD) can developmentally precede overanxious disorder, which is now classified under generalized anxiety disorder according to the DSM-IV-TR. Silove, Manicavasgar, Curtis and Blaszczyński (1996) demonstrated that SAD is a significant predictor of later panic disorder in adulthood.

This developmental perspective of the psychopathology of anxiety can help explain why very few items on all three sets of measures (PANAS/PANAS-C, ASI/CASI, DASS-21/RCADS) were significantly correlated. Anxiety symptoms change according to development throughout the lifespan, therefore some symptoms may not be present at one particular time in children and adults. Also, some anxiety symptoms may be expressed as different variants of a particular anxiety disorder. This study correlated the similar symptoms between mothers and their children; therefore, it is possible that although both

mothers and their children have experienced similar symptoms at one particular point during their lifetime, it is possible they did not experience these symptoms at the same time. Furthermore, whereas the self-report measures used assess current anxiety symptoms, rather than lifetime anxiety symptoms, it is possible that mothers and their children can experience similar anxious symptoms, however at different points during their development. Therefore, it is possible that there are anxiety symptoms that are similar between mother and child, when a lifetime versus current assessment is examined.

Child self-report measures of anxiety are, for the most part, downward extensions of adult measures of anxiety; therefore, they are based on the assumption that anxiety in children closely resembles the presenting features in adults (Spence, 1998). Although a large amount of research supports overlap in the presentation of anxiety symptoms in children and adults it is evident that there are developmental differences when examining parent and child anxiety that should be considered.

6.7 Type of Assessment Used

In the majority of the studies examined from the anxiety literature that demonstrate a significant relationship between maternal and child anxiety, maternal and child anxiety disorders, and maternal and child anxiety symptoms the methodology used includes either solely diagnostic interviews or a combination of diagnostic interviews and self-report measures. The use of solely diagnostic interviews or a combination of diagnostic interviews and self-report measures are present in both clinical and nonclinical studies examining maternal and child anxiety. (Gifford et al., 2008; Burnstein and Ginsberg, 2010) The current study differs because only self-report measures were used as the primary form of assessment to measure anxiety and anxiety symptoms in mothers and

their children. Therefore, results of this study demonstrates there were no significant positive correlations found between global measures of anxiety, anxiety sensitivity, and negative affect in mothers and children. By only using self-report measures, global measures of anxiety may not have been identified in this study and in future studies diagnostic interviews or a combination of interviews and self-report measures may demonstrate significant associations between maternal and child anxiety, anxiety sensitivity, and negative affect.

Some clinical studies that demonstrate a significant relationship between maternal and child anxiety that were discussed previously include research conducted by Last and colleagues (1987), Hughes et al. (2009), and Gifford and colleagues (2008). Last and colleagues (1987) administered semi-structured diagnostic interviews (SCID) to children. Mothers were interviewed using a structured diagnostic interview. Both interviews assessed anxiety based on DSM-III criteria. There were no self-report measures administered in this study. Hughes and colleagues (2006) administered the ADIS-IV C/P to mothers and their children, along with the SCID to mothers. Results from both of these studies showed a significant relationship between maternal and child anxiety. Gifford and colleagues (2008) administered the ADIS-IV C/P versions to children and their mothers. Self-report measures were also administered. Not only did Gifford and colleagues (2008) demonstrate that mothers of children with anxiety had higher anxiety scores than mothers of nonclinical children, but they also found a significant correlation between anxiety symptoms in mothers and anxiety symptoms in children.

Nonclinical studies that were mentioned above that demonstrated a relationship between maternal and child anxiety included studies conducted by McClure and

colleagues (2001) and Burnstein and Ginsberg (2010). McClure and colleagues (2001) used only diagnostic interviews to assess maternal and child anxiety (SCID; K-SADS-E), whereas Burnstein and Ginsberg (2010) used a combination of a diagnostic measure (ADIS) and self-report measures (SCARED; BSI) to measure anxiety.

Results from these studies differ from the results of the current study because there was not a significant correlation between maternal and child anxiety and very few anxiety symptoms showed significant correlations. This difference may be due to the use of only self-report measures in the current study. Self-report measures are easy to administer and require a minimum amount of time to administer, and captures information about anxiety from the participant's point of view. Muris (2007) recommends using a multimethod approach when assessing fear and anxiety symptoms. Diagnostic interviews are the main assessment tool used by clinicians and researchers to reach a DSM diagnosis. However, self-report measures are essential for measuring internal and the subjective nature of fear and anxiety (Muris, 2007). Therefore by solely using self-report measures in this study global anxiety, Anxiety Sensitivity, and Negative Affect may have been underestimated. By incorporating a diagnostic interview with the measures used, it may have allowed for a more valid assessment of anxiety in both mothers and their children, resulting in a larger number of correlations between anxious symptoms.

Another explanation to why there were no significant findings of global anxiety, anxiety sensitivity, and negative affect between mothers and their children may have been due to having more than one rater filling out the anxiety measures. This study did not ask mothers to report on child anxiety, rather just report on their own anxiety, while children

filled out their own self-report measure of anxiety. Therefore, the maternal and child anxiety symptom ratings are from different reporters. Research demonstrates that cross-information correlations for behaviours are lower when there are multiple reporters rather than a single reporter. Most studies have indicated poor symptom agreement between parents and children (Jensen et al., 1999). Therefore, by allowing a single reporter such as the mother in the current study, to report both parent and child symptoms of anxiety there may have been a larger correlation between global anxiety, anxiety sensitivity, and negative affect.

6.8 Clinical versus Nonclinical Sample

The participants in this study included a nonclinical sample from a school population. It was unknown if any of the participants, both mothers and children, had diagnosed anxiety disorders. Although prevalence rates among nonreferred children and adolescents have ranged from 10.7% to 17.3% (Kashani & Orvaschel, 1988), research indicates that anxiety disorders are more prevalent among clinical samples compared to nonreferred children (Weiss & Last, 2001). Therefore, comparing this sample to a clinical sample may show a decreased rate of anxiety disorders and symptoms. This may help explain the largely null results of the proposed hypotheses predicting that there is a relationship between maternal and child anxiety. Given that this sample was a nonclinical sample, it is possible that there were not enough mother-child dyads that have experienced or are currently experiencing anxiety symptoms to determine if anxiety and anxiety symptoms significantly correlate. With an increased sample size, there may be more mother-child dyads with a history of anxiety, resulting in a stronger correlation between maternal and child anxiety and an increased number of anxiety symptoms

demonstrating significant correlations. Also, given that a clinical sample would include individuals who have met diagnostic criteria for an anxiety disorder, examining mother-child dyads from a clinical sample may give a better insight into the similar symptoms that exist between mothers and their children.

Chapter Seven: Implications

There are many implications of this study. To begin, this study examined anxiety symptoms between mothers and their children. There is limited research examining specific symptoms, particularly with nonclinical samples. Results of this study demonstrated that although there was not a significant relationship between global maternal and child anxiety, there is a significant relationship between specific maternal and child anxiety. This demonstrates that anxiety symptoms may have a heritable component, particularly at the specific level.

The results of this study also may demonstrate evidence for a developmental approach to anxiety symptoms in mothers and their children. Although anxiety symptoms may be similar between mothers and the children, these symptoms may not become apparent until a particular age and they may change throughout the lifespan.

Finally, whereas the results of this study demonstrated that the majority of the symptoms that were similar were physiological in nature, physiologically based symptoms may be more likely to be transferred from mother to child. With further research, these findings may have important implications when examining subclinical and clinical levels of anxiety in children, such as determining where the anxiety may have manifested and how familial factors have an impact on the child. Furthermore, by having a better understanding of subclinical and clinical levels of anxiety in nonclinical populations and where this anxiety may manifest or be transmitted from, counsellors and educational psychologists can have a better understanding of the anxious symptoms that

students may face which can help decide what therapy treatments or assessments students with anxiety symptoms may need.

Chapter Eight: Limitations and Future Directions

There were some limitations of this study that should be addressed. According to Spence (1998) structured interviews can be cumbersome to administer and are not practical as large scale screening in nonclinical environments. Therefore, in environments such as school populations, it can be very difficult to assess children using structured interviews so that it will not interfere with curriculum time and their school day. Self-report measures were used in this study to allow for larger participation and shorter administration times. However, whereas the majority of the research in this area that demonstrates a significant relationship between maternal and child anxiety uses a mixed method approach of diagnostic interviews and self-reports, it may have provided more significant results if similar methods were used in the current study. Also, some diagnostic interviews examine lifetime anxiety symptoms, rather than only current anxiety symptoms. Due to the developmental differences in anxiety symptoms throughout the lifespan, an analysis of lifetime symptoms may increase the number of similar symptoms between mothers and their children. A larger sample size may also allow for a larger number of participants to self-report symptoms of anxiety, thereby increasing the number of significant similar maternal and child anxiety symptoms.

Further research is needed in the area of maternal and child anxiety, particularly when examining anxiety symptoms. Diagnostic interviews would give researchers a more in-depth understanding of the symptoms that mothers and their children are currently experiencing and have experienced in the past. A future direction regarding the results of this study would be to replicate it incorporating a larger sample size, diagnostic

interviews in combination with the self-report measures, and include comparisons of a non-clinical to a clinical sample.

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Appendix I: Tables

Table 5.1

Similar Anxiety Symptom Pairs between the DASS-21 and the RCADS

| <u>Anxiety Symptom</u> | | <u>Number of raters that indicated similarity</u> |
|---|--|---|
| <u>DASS-21</u> | <u>RCADS</u> | |
| Item 4: "I experienced breathing difficulty" | Item 14: "I suddenly feel as if I can't breathe when there is no reason for this" | 7 |
| Item 7: "I experienced trembling" | Item 26: "I suddenly start to tremble or shake when there is no reason for this" | 4 |
| Item 9: "I was worried about situations in which I might panic and make a fool of myself" | Item 28: "When I have a problem, I feel shaky" Item 20: "I worry I might look foolish" | 4 |
| Item 19: "I was aware of the action of my heart in the absence of physical exertion" | Item 43: I feel afraid that I will make a fool of myself in front of people" | 6 |
| Item 20: "I felt scared without any good reason" | Item 39: "My heart suddenly starts to beat too quickly for no reason" | 7 |
| | Item 34: "All of a sudden, I feel really scared for no reason at all" | 6 |
| | Item 41: "I worry that I will suddenly get a scared feeling when there is nothing to be afraid of" | 4 |

Table 5.2

Similar Anxiety Sensitivity Symptom Pairs between the ASI and the CASI

| <u>ASI</u> | <u>Symptom CASI</u> | <u>Number of raters that indicated similarity</u> |
|---|--|---|
| Item 1: "It is important to me not to appear nervous" | Item 1: "I don't want other people to know when I feel afraid" | 7 |
| | Item 17: "I don't like to let my feelings show" | 4 |
| Item 2: "When I cannot keep my mind on a task, I worry that I might be going crazy" | Item 2: "When I cannot keep my mind on my schoolwork, I worry that I might be going crazy" | 7 |
| Item 3: "It scares me when I feel 'shaky'" | Item 3: "It scares me when I feel 'shaky'" | 7 |
| Item 4: "It scares me when I feel faint" | Item 4: It scares me when I feel like I am going to faint" | 7 |

| | | |
|--|--|---|
| Item 5: "It is important to me to stay in control of my emotions" | Item 5: "It is important for me to stay in control of my feelings" | 7 |
| | Item 17: "I don't like to let my feelings show" | 4 |
| Item 6: "It scares me when my heart beats rapidly" | Item 6: "It scares me when my heart beats fast" | 7 |
| Item 7: "It embarrasses me when my stomach growls" | Item 7: "It embarrasses me when my stomach growls" | 7 |
| Item 8: "It scares me when I am short of breath" | Item 8: "It scares me when I feel like I am going to throw up" | 7 |
| Item 9: "When I notice that my heart is beating rapidly, I worry that I might have a heart attack" | Item 9: "When I notice that my heart is beating fast, I worry that there might be something wrong with me" | 7 |
| Item 10: "It scares me" | Item 10: "It scares me" | 7 |

| | | |
|--|---|---|
| when I am short of breath" | when I have trouble getting my breath" | |
| Item 11: "When my stomach is upset, I worry that I might be seriously ill" | Item 11: "When my stomach hurts, I worry that I might be really sick" | 7 |
| Item 12: "It scares me when I am unable to keep my mind on a task" | Item 12: "It scares me when I can't keep my mind on my schoolwork" | 7 |
| Item 13: "Other people notice when I feel shaky" | Item 13: "Other kids can tell when I feel shaky" | 7 |
| Item 14: "Unusual body sensations scare me" | Item 14: "Unusual feelings in my body scare me" | 7 |
| | Item 18: "Funny feeling in my body scare me" | 7 |
| Item 15: "When I am nervous, I worry that I might be mentally ill" | Item 15: "When I am afraid, I worry that I might be crazy" | 7 |

| | | |
|--|--|---|
| Item 16: "It scares me when I am nervous" | Item 16: "It scares me when I feel nervous" | 7 |
|--|--|---|

Table 5.3

Similar Negative Affect Symptom Pairs between the PANAS and the PANAS-C

| <u>Symptom</u> | | <u>Number of raters that indicated similarity</u> |
|-----------------------|-------------------------|---|
| <u>PANAS</u> | <u>PANAS-C</u> | |
| Item 4: "Upset" | Item 6: "Upset" | 7 |
| Item 6: "Guilty" | Item 10: "Guilty" | 7 |
| Item 7: "Scared" | Item 3: "Frightened" | 4 |
| | Item 12: "Scared" | 6 |
| Item 8: "Hostile" | Item 22: "Mad" | 7 |
| Item 13: "Ashamed" | Item 5: "Ashamed" | 7 |
| Item 15: "Nervous" | Item 9: "Nervous" | 7 |
| Item 18: "Jittery" | Item 15: "Nervous" | 7 |
| Item 20: "Afraid" | Item 3: "Frightened" | 4 |
| | Item 19: "Afraid" | 6 |

Table 5.4

Means and Standard Deviations for Age of Participants in Study Two

| | <u>Child</u> | <u>Mother</u> |
|--------------------|--------------------|--------------------|
| Mean | 12 years, 5 months | 42 years, 5 months |
| Standard Deviation | 3 years, 3 months | 5 years, 2 months |

Table 5.5

Total Anxiety, Anxiety Sensitivity, and Negative Affect Comparisons Between Parental and Child Self-Report Anxiety Measures

| <u>Self-Report Anxiety Measures</u> | <u>Pearson Correlation (r-value)</u> | <u>Significance (p<0.05)</u> |
|-------------------------------------|--------------------------------------|---------------------------------|
| DASS -21/RCADS | 0.077 | 0.57 |
| ASI/CASI | 0.0080 | 0.95 |
| PANAS/PANAS-C | 0.22 | 0.11 |

Table 5.6

Anxiety Symptom Comparisons between the DASS-21 and RCADS

| <u>Anxiety Symptom</u> | | <u>Pearson Correlation (r-value)</u> | <u>Significance (p<0.05)</u> |
|--|---|--------------------------------------|---------------------------------|
| <u>DASS-21</u> | <u>RCADS</u> | | |
| Item 4: "I experienced breathing difficulty" | Item 14: "I suddenly feel as if I can't breathe when there is no reason for this" | 0.21 | 0.12 |
| Item 7: "I experienced trembling" | Item 26: "I suddenly start to tremble or shake when there is no reason for this" | .044 | 0.74 |

| | | | |
|---|---|--------|--------|
| | Item 28: “When I have a problem, I feel shaky” | 0.31 | 0.015* |
| Item 9: “I was worried about situations in which I might panic and make a fool of myself” | Item 20: “I worry I might look foolish” | -0.13 | 0.34 |
| | Item 43: “I feel afraid that I will make a fool of myself in front of people” | -0.19 | 0.15 |
| Item 19: “I was aware of the action of my heart in the absence of physical exertion” | Item 39: “My heart suddenly starts to beat too quickly for no reason” | 0.15 | 0.27 |
| Item 20: “I felt scared without any good reason” | Item 34: “All of a sudden, I feel really scared for no reason at all” | 0.010 | 0.94 |
| | Item 41: I worry that I will suddenly get a scared feeling when there is nothing to be afraid of. | -0.033 | 0.81 |

*Significant (p<0.05)

Table 5.7

Anxiety Sensitivity Symptom Comparisons between the ASI and CASI

| <u>ASI</u> | <u>Symptom</u> <u>CASI</u> | <u>Pearson Correlation (r-</u> <u>value)</u> | <u>Significance (p,0.05)</u> |
|---|--|---|------------------------------|
| Item 1: "It is important to me not to appear nervous" | Item 1: "I don't want other people to know when I feel afraid" | .049 | 0.72 |
| | Item 17: "I don't like to let my feelings show" | 0.015 | 0.91 |
| Item 2: "When I cannot keep my mind on a task, I worry that I might be going crazy" | Item 2: "When I cannot keep my mind on my schoolwork, I worry that I might be going crazy" | 0.31 | 0.018* |
| Item 3: "It scares me when I feel "shaky" | Item 3: "It scares me when I feel "shaky" | 0.17 | 0.22 |
| Item 4: "It scares me when I feel faint" | Item 4: It scares me when I feel like I am going to faint" | 0.28 | 0.034* |
| Item 5: "It is important to me to stay in control of my emotions" | Item 5: "It is important for me to stay in control of my feelings" | -0.18 | 0.18 |

| | | | |
|--|--|--------|-------|
| | Item 17: "I don't like to let my feelings show" | 0.10 | 0.46 |
| Item 6: "It scares me when my heart beats rapidly" | Item 6: "It scares me when my heart beats fast" | 0.24 | 0.074 |
| Item 7: "It embarrasses me when my stomach growls" | Item 7: "It embarrasses me when my stomach growls" | 0.11 | 0.40 |
| Item 8: "It scares me when I am short of breath" | Item 8: "It scares me when I feel like I am going to throw up" | 0.095 | 0.48 |
| Item 9: "When I notice that my heart is beating rapidly, I worry that I might have a heart attack" | Item 9: "When I notice that my heart is beating fast, I worry that there might be something wrong with me" | -0.074 | 0.59 |
| Item 10: "It scares me when I am short of breath" | Item 10: "It scares me when I have trouble getting my breath" | 0.12 | 0.38 |

| | | | |
|---|--|--------|-------|
| Item 11: “When my stomach is upset, I worry that I might be seriously ill” | Item 11: “When my stomach hurts, I worry that I might be really sick” | 0.0050 | 0.97 |
| Item 12: “It scares me when I am unable to keep my mind on a task” | Item 12: “It scares me when I can’t keep my mind on my schoolwork” | 0.26 | .047* |
| Item 13: “Other people notice when I feel shaky” | Item 13: “Other kids can tell when I feel shaky” | -0.16 | 0.25 |
| Item 14: “Unusual body sensations scare me” | Item 14: “Unusual feelings in my body scare me” | -0.064 | 0.64 |
| | Item 18: “Funny feeling in my body scare me” | 0.20 | 0.14 |
| Item 15: “When I am nervous, I worry that I might be mentally ill” | Item 15: “When I am afraid, I worry that I might be crazy” | -0.013 | 0.93 |
| Item 16: “It scares me when I am | Item 16: “It scares me when I feel | -0.14 | 0.31 |

nervous” nervous”

*Significant (p<0.05)

Table 5.8

Negative Affect Symptom Comparisons between the PANAS and PANAS-C

| <u>Symptom</u> | | <u>Pearson Correlation (r-</u> | <u>Significance (p<0.05)</u> |
|-----------------------|-------------------------|--------------------------------|---------------------------------|
| <u>PANAS</u> | <u>PANAS-C</u> | <u>value)</u> | |
| Item 4: “Upset” | Item 6: “Upset” | -0.03 | 0.83 |
| Item 6: “Guilty” | Item 10: “Guilty” | 0.20 | 0.13 |
| Item 7: “Scared” | Item 3: “Frightened” | 0.38 | 0.0050* |
| | Item 12: “Scared” | 0.0070 | 0.96 |
| Item 8: “Hostile” | Item 22: “Mad” | 0.18 | 0.19 |
| Item 13: “Ashamed” | Item 5: “Ashamed” | 0.20 | 0.15 |
| Item 15: “Nervous” | Item 9: “Nervous” | 0.24 | 0.073 |
| Item 18: “Jittery” | Item 15: “Nervous” | 0.40 | 0.0020* |
| Item 20: “Afraid” | Item 3: “Frightened” | 0.24 | 0.082 |
| | Item 19: “Afraid” | 0.23 | 0.083 |

*Significant (p<0.05)

Appendix II: Study One Instructions for Raters

(Sent Via Email):

Hi Everyone,

Here are the instructions as discussed during the past lab meeting:

You will be comparing three sets of measures including The Anxiety Sensitivity Index (ASI) with the Child Anxiety Sensitivity Index (CASI), The Positive and Negative Affect Schedule with the Positive and Negative Affect Schedule (Child Version) and The Depression and Anxiety Scale (DASS-21) with the Revised Child Anxiety and Depression Scale (RCADS).

You will receive two booklets, one with adult measures and one with child measures. The adult versions are in the booklet with the first measure titled "ASI" and the child versions are in the booklet with the first measure titled "RCADS". Please look for similar symptoms between the individual sets of measures indicated above. If you find an item on the child measure that matches with specific anxious symptoms on the adult measure please write the item number on the left hand side of the corresponding item on the adult measure. For example, if item #2 on the CASI corresponds with item #5 on the ASI please write number 2 next to item 5 on the ASI.

All items on the child versions may not correspond with a similar symptom on the adult measure. Also, one child item may correspond with more than one item on the adult measure. If this is the case, please write both numbers next to the corresponding item. All corresponding items should be written on the adults measures only, please do not write on the child measures.

If you would like to participate in this study you can pick up the blank parent and child measures in the graduate student's office. There will be three envelopes: one containing blank parent measures, one containing blank child measures, and one for completed comparisons. When you have finished comparing the items on all measures, please put both the parent and child measures into the envelope marked "completed measures".

Thanks for your participation,

Julia

**Appendix III: Information Letter for Principals and
Teachers**

Memorial University Anxiety Study – Information for Principals and Teachers

This research study is testing a new questionnaire. This questionnaire is designed for parents to fill out. It provides information about how parents think and feel about their child experiencing anxiety. It will be used to see if the way parents think and feel about their child's experience of anxiety is related to the way their children think and feel about things. Participating in this study will assist researchers in finding out more about how parents and families can help shape the way a child thinks and feels about life events. The Human Investigations Committee (HIC) of Memorial University has granted permission to us to request your cooperation in this study.

Purpose of the Study

Anxiety affects between 10% and 20% of all children. It is the primary reason for referral for mental health services among youth. Efforts to increase the efficacy of assessment and treatment strategies for anxiety disorders will benefit a significant number of families. Identifying variables that link parental and child anxiety is important for two reasons. (1) These factors can be targets of treatment or prevention programs to assist children with anxiety. (2) A greater understanding of how anxiety is passed from parents to children will inform theories of the nature of anxiety and how it develops in children. However, before either of these lines of research can be pursued, a measure that is reliable, valid, and easily administered needs to be developed. As such, this study will attempt to refine a newly developed questionnaire for parents – the Parental Beliefs about Anxiety Questionnaire (PBA-Q).

Procedure and Time Commitment

This study will assess parent-child pairs in which the child is between the ages of 7 and 17. Each parent and their child will be asked to independently fill out several questionnaires (6 for parents, 4 for children). The parent questionnaires take approximately 45 minutes to complete and ask parents to report on their own experience of anxiety, depression, and stress, as well as to report on their child's experience of these same symptoms. The child questionnaires take approximately 30 minutes to complete and ask children to report on their own experience of anxiety, depression, and stress. Parents will be asked to complete their questionnaires at home; children will be asked to complete their questionnaires at school. Research assistants will meet with children at the school (either individually or in groups) to assist them with completing the questionnaires.

Foreseeable Risks and Benefits

Little risk or benefit is foreseen. However, there is a slight risk of mild discomfort involved when reading the items on the questionnaires. This risk is uncommon. Moreover, all participants (parents and children) will be informed that they can terminate their participation at any point, and suffer no consequences whatsoever for doing so.

Confidentiality

Children's participation in this study will be kept confidential. The information gathered will be seen only by the researchers involved in this study and will be used for research

purposes only. Parent and child questionnaires will be labeled with the same numeric codes; no identifying information will be associated with parent or child questionnaires. Parent and child information will be linked by number so that parent responses can be compared to child response on each assessment instrument. As such, the information collected will remain confidential but will not be anonymous (e.g., each respondent's data will be coded so that parent and child measures can be linked in analyses). Any results reported from this study will be reported in terms of groups; no information that identifies an individual child will ever be released.

Consent

Participation is completely voluntary. Only those children whose parents have given written permission will be asked to participate in this study. If the child him/herself agrees to participate, he/she can still withdraw from the study at any time. Should a child choose to stop his/her participation, his/her data will be withdrawn from the study as well.

School Resources

We are asking for permission from principals to conduct this research in their school, and the use of some space where we can meet with children to complete their questionnaires either individually or in a group. We are only asking teachers to allow a research assistant to make a brief announcement about the study to the classroom and to distribute and collect the permission forms. Additionally, the research will only be conducted at the convenience of the teachers and in coordination with the children's schedules.

Findings From this Study

The findings from this project might be used to help clinical researchers better understand anxiety in children and the ways in which it is transmitted across generations. Developing a time- and cost-efficient questionnaire to assess a key variable in this relationship can facilitate future treatment and prevention efforts locally and abroad

Any questions, concerns, or comments about this research can be directed to Sarah Francis via email at sfrancis@mun.ca, or via phone at 737-4897. Should you have any ethical concerns about this research, you may contact the Chairperson of the HIC at hic@mun.ca or by telephone at 777-6974.

Sincerely,

Sarah E. Francis, Ph.D.
Assistant Professor
Department of Psychology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
Email: sfrancis@mun.ca
Telephone: 709-737-4897
Fax: 709-737-2430

Appendix IV: Parent Information Form

Memorial University Anxiety Study – Parental Information Form

Dear Parent(s),

As researchers from Memorial University of Newfoundland, we are inviting you to take part in a project examining child anxiety. Findings from this study will be used to see if the way parents think and feel about their child's experience of anxiety is related to the way their children think and feel about things. The Human Investigations Committee (HIC) of Memorial University as well as the Eastern School District Board and the principal of your child's school have granted permission to us to request your cooperation in this study.

Details of the study are outlined in the attached consent form. Please fill out the last page of this letter and return it to your child's teacher. If you are interested in participating in this study, please make sure to sign the bottom of the form. You will receive some questionnaires in the mail to fill out at home.

If you decide that you do not want to participate in this study, that is all right. Please just fill out the last page of the form and return it to your child's teacher.

If you have any questions or concerns regarding this project please feel free to contact me **Dr. Sarah Francis**, the principal investigator. I can be reached at **737-4897**.

Sincerely,



Sarah E. Francis, Ph.D., R.Psych.
Assistant Professor
Department of Psychology
Memorial University of Newfoundland
St. John's, NL A1B 3X9
Email: sfrancis@mun.ca
Telephone: 737-4897
Fax: 737-2430

Appendix V: Consent to Take Part in Health Research

Consent to Take Part in Health Research

Project title: Assessing Parental Beliefs About Anxiety

Investigator: Dr. Sarah Francis, Ph.D., R.Psych.

What is the project about?

This project is developing a new questionnaire for parents. This questionnaire will help researchers find out if the way parents think about anxiety affects the way their children think and feel. This project will help researchers find out more about how parents and families can shape the way a child thinks and feels about life events.

How will I be involved?

If you decide to take part in this project, you will be asked to fill out 6 questionnaires. You can fill out these questionnaires at any time. You can return them by mail. It usually takes 35 to 45 minutes for parents to fill out 6 questionnaires. A research assistant may contact you to follow-up on your progress with the questionnaires.

How will my child be involved?

When your questionnaires are mailed back, a research assistant will meet with your child at the school. Your child will be asked to fill out 3 questionnaires. It usually takes children 20 to 30 minutes to fill out 3 questionnaires. Here are some sample statements where your child would mark down how much they felt they were true for them: "*I worry I might look foolish*", "*I feel restless*", & "*I worry about making mistakes*".

What are the possible risks and benefits?

There are no known risks or discomforts. You and your child can stop filling out these questionnaires at any time. The investigator will be available to answer any questions you might have about the questionnaires and to address any concerns.

Liability statement:

Signing this form gives us your consent to be in this project. It tells us that you understand the information about the research project. When you sign this form, you do not give up your legal rights.

What about my and my child's privacy and confidentiality:

Information you provide on the questionnaires is confidential. Whatever you and your child write on these questionnaires will remain anonymous. Your name or any information that can identify you will never be associated with presentations, reports, or articles using information collected in this project. The information collected on these questionnaires might be looked at a later time as part of a future project. No one will have access to identifying information other than the investigator.

If you have any questions about your child taking part in this project, please contact the investigator **Dr. Sarah Francis 737-4897**.

Or if you would like to talk to someone who is not involved with the project at all, but can advise you on your child's rights as a participant in a research project please contact the **Office of the Human Investigation Committee (HIC)** at 777-6974, email: hic@mun.ca

Faculty of Science, Department of Psychology at
Memorial University of Newfoundland

Signature Page

Project: Assessing Parental Beliefs About Anxiety

Investigator: Dr. Sarah Francis

_____ I *am* interested in participating; please send me more information

_____ I am *not* interested in participating; please do not contact me

Please complete the information below:

Child's Name: _____

Child's School: _____

Child's Teacher: _____

Please complete the information below only if you are interested in participating:

Parent's name: _____

Address: _____

Telephone: _____

Please check as appropriate:

I have read the consent [and information sheet]. Yes { } No { }

I have received enough information about the project. Yes { } No { }

I understand that I am free to withdraw from the project Yes { } No { }

- at any time
- without having to give a reason
- without affecting my child's educational/daycare services

I understand that it is my choice to be in the project and that I may not benefit. Yes { } No { }

I agree for myself and my child to take part in this project. Yes { } No { }

Parent Signature

Date

Appendix VI: Assent to Take Part in Health Research

**Faculty of Medicine, Schools of Nursing and Pharmacy of Memorial
University of Newfoundland; Eastern Health; Dr. H. Bliss Murphy Cancer Centre**

Assent to Take Part in Health Research

TITLE: Assessing Parental Beliefs About Anxiety

INVESTIGATOR(S): Dr. Sarah Francis

I understand that I am being asked to take part in a study to help people find out more about the ways parents and children think and feel about things. I am going to be asked to fill out some questionnaires about how I think and feel. My parents will also be asked to fill out some forms.

I understand that I do not have to take part in the study if I do not want to.

I can ask for help at any time, and I can ask to stop or to take a break at any time. If I am uncomfortable with any of the questions, I can stop. I know I do not have to answer any questions I do not want to answer.

Whatever I write on my questionnaires is private. No one here will use my name to talk about anything that I write.

This is not a test. There are no right or wrong answers. I can answer these questions however I think or feel.

If I have questions for anyone, I can ask them now before we begin or at any time I need help.

I understand what I just read, and I agree to take part in this study.

Assent of minor participant:

Signature of minor participant

Date

Appendix VII: Parent Self-Report Measures of Anxiety

Participant Number: _____

Background Information

1. Child's age years _____ months _____

2. Child's gender (circle one): M F

3. Child's ethnicity (please check one):

_____ Aboriginal (Inuit, Metis, North American Indian) *please specify* _____

_____ Arab/West Asian (e.g., Armenian, Egyptian, Iranian, Lebanese, Moroccan)

_____ Black (e.g., African, Haitian, Jamaican, Somali) *please specify* _____

_____ Chinese

_____ Filipino

_____ Japanese

_____ Korean

_____ Latin American

_____ South Asian

_____ South East Asian

_____ White (Caucasian)

_____ Other *please specify* _____

4. Mother's ethnicity: ___ Same as child's ___ Other (please describe): _____

5. Father's ethnicity: ___ Same as child's ___ Other (please describe): _____

6. What is your relationship to the child? Mother Father Grandparent Other

Participant Number: _____

7. Who lives at home with your child? (please check all that apply):

_____ Parents. If yes, how many? _____

_____ Siblings. If yes, how many? _____ Brothers _____ Sisters

_____ Grandparents. If yes, how many? _____

_____ Other relatives. If yes, how many? _____

_____ Other individuals who are not relatives. If yes, how many?

_____ Children _____ Adults

8. Are you and your child's father/mother currently:

_____ Married to each other

_____ Divorced/separated and living separately

_____ Never married and living together with child

_____ Never married and living separately

_____ Other; please explain: _____

9. What grade is your child *currently* in at school? _____

10. At what age did your child begin school/preschool? _____

11. **Usual** academic performance (please circle):

A B C D F

12. **Current** academic performance (please circle):

A B C D F

13. Academic problems? YES NO

If yes, please describe: _____

Participant Number: _____

14. Other significant events (skipping or repeating a grade, changing schools, etc.)?

YES NO

If yes, please describe: _____

15. Behaviour problems (at home or at school)? YES NO

If yes, please describe: _____

16. Problems with peers (at school or in the neighborhood)? YES NO

If yes, please describe: _____

17. Child's father:

Age: _____ Occupation: _____

Highest education level attained (check one):

_____ Grade 8 or less

_____ More than grade 8, but did not graduate from High School

_____ Went to a business, trade, or vocational school instead of High School

_____ High School Graduate

_____ Went to a business, trade, or vocational school after High School

_____ Went to university, but did not graduate

_____ Graduated university with a bachelor's degree (B.A., B.Sc.)

_____ Graduate education at the Master's degree level (M.A., M.Sc., etc.)

_____ Graduate education at the doctoral level (M.D., Ph.D., etc.)

Is father living? (circle one): YES NO

Participant Number: _____

18. Child's mother:

Age: _____ Occupation: _____

_____ Grade 8 or less

_____ More than grade 8, but did not graduate from High School

_____ Went to a business, trade, or vocational school instead of High School

_____ High School Graduate

_____ Went to a business, trade, or vocational school after High School

_____ Went to university, but did not graduate

_____ Graduated university with a bachelor's degree (B.A., B.Sc.)

_____ Graduate education at the Master's degree level (M.A., M.Sc., etc.)

_____ Graduate education at the doctoral level (M.D., Ph.D., etc.)

Is mother living? (circle one): YES NO

19. Estimated annual family income (please check one):

_____ \$0 - \$36,378

_____ \$36,379 - \$72,756

_____ \$72,757 - \$118,285

_____ over \$118,286

Participant Number: _____

DASS₂₁

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

| | | | | | |
|----|--|---|---|---|---|
| 1 | I found it hard to wind down | 0 | 1 | 2 | 3 |
| 2 | I was aware of dryness of my mouth | 0 | 1 | 2 | 3 |
| 3 | I couldn't seem to experience any positive feeling at all | 0 | 1 | 2 | 3 |
| 4 | I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion) | 0 | 1 | 2 | 3 |
| 5 | I found it difficult to work up the initiative to do things | 0 | 1 | 2 | 3 |
| 6 | I tended to over-react to situations | 0 | 1 | 2 | 3 |
| 7 | I experienced trembling (eg, in the hands) | 0 | 1 | 2 | 3 |
| 8 | I felt that I was using a lot of nervous energy | 0 | 1 | 2 | 3 |
| 9 | I was worried about situations in which I might panic and make a fool of myself | 0 | 1 | 2 | 3 |
| 10 | I felt that I had nothing to look forward to | 0 | 1 | 2 | 3 |
| 11 | I found myself getting agitated | 0 | 1 | 2 | 3 |
| 12 | I found it difficult to relax | 0 | 1 | 2 | 3 |
| 13 | I felt down-hearted and blue | 0 | 1 | 2 | 3 |
| 14 | I was intolerant of anything that kept me from getting on with what I was doing | 0 | 1 | 2 | 3 |
| 15 | I felt I was close to panic | 0 | 1 | 2 | 3 |
| 16 | I was unable to become enthusiastic about anything | 0 | 1 | 2 | 3 |
| 17 | I felt I wasn't worth much as a person | 0 | 1 | 2 | 3 |
| 18 | I felt that I was rather touchy | 0 | 1 | 2 | 3 |

Participant Number: _____

| | | | | | |
|----|--|---|---|---|---|
| 19 | I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat) | 0 | 1 | 2 | 3 |
| 20 | I felt scared without any good reason | 0 | 1 | 2 | 3 |
| 21 | I felt that life was meaningless | 0 | 1 | 2 | 3 |

Participant Number: _____

ASI

Respond to each item by circling one of the five corresponding phrases. Circle the number which best represents the extent to which you agree with the item. If any of the items concern something that is not part of your experience (i.e., "It scares me when I feel shaky" for someone who has never trembled or had the "shakes"), answer on the basis of how you think you might feel *if you had* such an experience. Be careful to make only one choice for each item and please answer all items.

| | Very little | | | | Very much |
|--|----------------|---|---|---|--------------|
| 1. It is important to me not to appear nervous. | 0 | 1 | 2 | 3 | 4 |
| 2. When I cannot keep my mind on a task, I worry that I might be going crazy. | 0 | 1 | 2 | 3 | 4 |
| 3. It scares me when I feel "shaky" (trembling). | 0 | 1 | 2 | 3 | 4 |
| 4. It scares me when I feel faint. | 0 | 1 | 2 | 3 | 4 |
| 5. It is important to me to stay in control of my emotions. | 0 | 1 | 2 | 3 | 4 |
| 6. It scares me when my heart beats rapidly. | 0 | 1 | 2 | 3 | 4 |
| 7. It embarrasses me when my stomach growls. | 0 | 1 | 2 | 3 | 4 |
| 8. It scares me when I am nauseous. | 0 | 1 | 2 | 3 | 4 |
| 9. When I notice that my heart is beating rapidly, I worry that I might have a heart attack. | 0 | 1 | 2 | 3 | 4 |
| 10. It scares me when I am short of breath. | 0 | 1 | 2 | 3 | 4 |
| 11. When my stomach is upset, I worry that I might be seriously ill. | 0 | 1 | 2 | 3 | 4 |
| 12. It scares me when I am unable to keep my mind on a task. | 0 | 1 | 2 | 3 | 4 |
| 13. Other people notice when I feel shaky. | 0 | 1 | 2 | 3 | 4 |
| 14. Unusual body sensations scare me. | 0 | 1 | 2 | 3 | 4 |
| 15. When I am nervous, I worry that I might be mentally ill. | 0 | 1 | 2 | 3 | 4 |
| 16. It scares me when I am nervous. | 0 | 1 | 2 | 3 | 4 |

Participant Number: _____

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

| | Very slightly or not at all | A little | Moderately | Quite a bit | Extremely |
|-----------------|--------------------------------|----------|------------|-------------|-----------|
| 1. Interested | 1 | 2 | 3 | 4 | 5 |
| 2. Distressed | 1 | 2 | 3 | 4 | 5 |
| 3. Excited | 1 | 2 | 3 | 4 | 5 |
| 4. Upset | 1 | 2 | 3 | 4 | 5 |
| 5. Strong | 1 | 2 | 3 | 4 | 5 |
| 6. Guilty | 1 | 2 | 3 | 4 | 5 |
| 7. Scared | 1 | 2 | 3 | 4 | 5 |
| 8. Hostile | 1 | 2 | 3 | 4 | 5 |
| 9. Enthusiastic | 1 | 2 | 3 | 4 | 5 |
| 10. Proud | 1 | 2 | 3 | 4 | 5 |
| 11. Irritable | 1 | 2 | 3 | 4 | 5 |
| 12. Alert | 1 | 2 | 3 | 4 | 5 |
| 13. Ashamed | 1 | 2 | 3 | 4 | 5 |
| 14. Inspired | 1 | 2 | 3 | 4 | 5 |
| 15. Nervous | 1 | 2 | 3 | 4 | 5 |
| 16. Determined | 1 | 2 | 3 | 4 | 5 |
| 17. Attentive | 1 | 2 | 3 | 4 | 5 |
| 18. Jittery | 1 | 2 | 3 | 4 | 5 |
| 19. Active | 1 | 2 | 3 | 4 | 5 |
| 20. Afraid | 1 | 2 | 3 | 4 | 5 |

Appendix VIII: Child Self-Report Measures of Anxiety

Demographic Information

Participant number _____

1. How old are you? _____
2. What month were you born? _____
3. What year were you born? _____
4. Circle which one you are.
 - a. Boy
 - b. Girl
5. Which of the following is your ethnic group
 - a. White
 - b. Black
 - c. Chinese
 - d. Filipino
 - e. Japanese
 - f. Korean
 - g. Latin American
 - h. Native (e.g., Inuit, Metis)
 - i. South Asian (e.g., Indian, Pakistani, Sri Lankan)
 - j. South East Asian (e.g., Thai, Vietnamese)
 - k. Arab/West Asian (e.g., Egyptian, Iranian, Lebanese)
 - l. Other _____

Participant Number: _____

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 |

Participant Number: _____

| | | | | | |
|-----|---|-------|-----------|-------|--------|
| 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 |

Participant Number: _____

| | | | | | |
|-----|--|-------|-----------|-------|--------|
| 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 |

Participant Number: _____

CASI

DIRECTIONS: A number of statements which boys and girls use to describe themselves are given below. Read each statement carefully and put a circle around the words that describe you. There are no right or wrong answers. Remember, find the words that best describe you.

Be careful to make only one choice for each item. Please answer all items.

- | | | | | |
|-----|---|------|------|-------|
| 1. | I don't want other people to know when I feel afraid. | None | Some | A lot |
| 2. | When I cannot keep my mind on my schoolwork, I worry that I might be going crazy. | None | Some | A lot |
| 3. | It scares me when I feel "shaky". | None | Some | A lot |
| 4. | It scares me when I feel like I am going to faint. | None | Some | A lot |
| 5. | It is important for me to stay in control of my feelings. | None | Some | A lot |
| 6. | It scares me when my heart beats fast. | None | Some | A lot |
| 7. | It embarrasses me when my stomach growls (makes noises). | None | Some | A lot |
| 8. | It scares me when I feel like I am going to throw up. | None | Some | A lot |
| 9. | When I notice that my heart is beating fast, I worry that there might be something wrong with me. | None | Some | A lot |
| 10. | It scares me when I have trouble getting my breath. | None | Some | A lot |
| 11. | When my stomach hurts, I worry that I might be really sick. | None | Some | A lot |
| 12. | It scares me when I can't keep my mind on my schoolwork. | None | Some | A lot |
| 13. | Other kids can tell when I feel shaky. | None | Some | A lot |
| 14. | Unusual feelings in my body scare me. | None | Some | A lot |
| 15. | When I am afraid, I worry that I might be crazy. | None | Some | A lot |
| 16. | It scares me when I feel nervous. | None | Some | A lot |
| 17. | I don't like to let my feelings show. | None | Some | A lot |
| 18. | Funny feelings in my body scare me. | None | Some | A lot |

Participant Number: _____

PANAS-C

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past few weeks.

| | Very slightly or not at all | A little | Moderately | Quite a bit | Extremely |
|---------------|-----------------------------------|----------|------------|----------------|-----------|
| 1. Interested | 1 | 2 | 3 | 4 | 5 |
| 2. Sad | 1 | 2 | 3 | 4 | 5 |
| 3. Frightened | 1 | 2 | 3 | 4 | 5 |
| 4. Excited | 1 | 2 | 3 | 4 | 5 |
| 5. Ashamed | 1 | 2 | 3 | 4 | 5 |
| 6. Upset | 1 | 2 | 3 | 4 | 5 |
| 7. Happy | 1 | 2 | 3 | 4 | 5 |
| 8. Strong | 1 | 2 | 3 | 4 | 5 |
| 9. Nervous | 1 | 2 | 3 | 4 | 5 |
| 10. Guilty | 1 | 2 | 3 | 4 | 5 |
| 11. Energetic | 1 | 2 | 3 | 4 | 5 |
| 12. Scared | 1 | 2 | 3 | 4 | 5 |
| 13. Calm | 1 | 2 | 3 | 4 | 5 |
| 14. Miserable | 1 | 2 | 3 | 4 | 5 |
| 15. Jittery | 1 | 2 | 3 | 4 | 5 |
| 16. Cheerful | 1 | 2 | 3 | 4 | 5 |
| 17. Active | 1 | 2 | 3 | 4 | 5 |
| 18. Proud | 1 | 2 | 3 | 4 | 5 |
| 19. Afraid | 1 | 2 | 3 | 4 | 5 |
| 20. Joyful | 1 | 2 | 3 | 4 | 5 |
| 21. Lonely | 1 | 2 | 3 | 4 | 5 |
| 22. Mad | 1 | 2 | 3 | 4 | 5 |
| 23. Disgusted | 1 | 2 | 3 | 4 | 5 |
| 24. Delighted | 1 | 2 | 3 | 4 | 5 |
| 25. Blue | 1 | 2 | 3 | 4 | 5 |
| 26. Gloomy | 1 | 2 | 3 | 4 | 5 |
| 27. Lively | 1 | 2 | 3 | 4 | 5 |

