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# Relationship between Parenting Stress and Children's Attributional Style in Childhood Anxiety

Syeda, Maisha

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Relationship between Parenting Stress and Children's Attributional Style in Childhood Anxiety

by

Maisha Musarrat Syeda

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### **Abstract**

Parenting stress and children's maladaptive attributional style have been known to be risk factors of childhood anxiety. The current study extends the literature by examining the effect of these two risk factors on children's anxious symptoms with respect to their age, sex, ethnicity and their own perception of their parents' stress in a sample of 8-12 year olds and their parents. Caregiving demands were direct predictors of parents' reports of their children's anxious symptoms, whereas girls' maladaptive negative attributional style and their own perception of their parents' stress directly predicted their reports of their anxious symptoms. Caregiving demands and parents' personal stressors had an indirect effect on girls' reports of their anxious symptoms through their maladaptive negative attributional style. Girls' perception of their parents' stress also interacted with their maladaptive negative attributional style to predict their anxious symptoms. Demographic differences with respect to parenting stress and children's maladaptive attributional style were also found.

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### **List of Abbreviations**

<b>Symbol</b>	<b>Definition</b>
ANOVA	Analysis of Variance
CASQ	Children's Attributional Style Questionnaire
CBT	Cognitive Behavioural Therapy
CPPS	Children's Perception of Parents' Stress
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision
F-CBT	Family-based Cognitive Behavioural Therapy
MANOVA	Multivariate Analysis of Variance
MASC-2	Multidimensional Anxiety Scales for Children-Second Edition
PSI-4	Parenting Stress Index-Fourth Edition
SPSS	IBM-SPSS Statistics 22.0

## Chapter One: Introduction

Anxiety disorders are one of the most common forms of psychopathology in children and adolescents (Costello, Egger, & Angold, 2005). Epidemiological studies report prevalence rates of childhood anxiety between the range of 2-17%, with 2.5-5% meeting criteria at any given age (Grills-Taquechel & Ollendick, 2007; Klimes-Dougan, & Slattery, 2000; Rapee, Schniering, & Hudson, 2009; Zahn-Waxler,). In Canada specifically, 5-14% of children within the age group of 5 to 12 have one or more anxiety disorders (Romano, Tremblay, Vitaro, Zoccolillo, & Pagani, 2001; Willms, 2002). Anxiety disorders are characterized by the display of excessive levels of fear, worry, somatic complaints and avoidant behaviour in relationship to the situation (Carthy, Horesh, Apter, Edge, & Gross, 2010). The age of onset varies between subtypes of anxiety, but once diagnosed, anxiety symptoms usually persist over the course of lifetime if remain untreated (Muris & Broeren, 2009). Anxiety disorders can lead to significant distress and interference to children and their families. In the short-run, children with anxiety might experience psychosocial impairments (e.g., low self-esteem, poor peer-relationships) and poor academic and vocational performances (e.g., participating in extra-curricular activities, seeking employment opportunities; Last, Hansen, & Franco, 1997), but in the long-run, their anxiety puts them at an increasing risk for developing substance abuse and dependence, suicidal ideations, clinical depression and other related psychiatric disorders (Woodward & Fergusson, 2001). Overall, research has also associated untreated anxiety with severe impairments in life functioning, affecting several life domains including emotional well-being, physical health, interpersonal relationships, education and employment (Albano, Chorpita, & Barlow, 2003, p. 300). Given such prognosis, it is crucial to have a comprehensive understanding of the risk factors that trigger, maintain and exacerbate

childhood anxiety disorders in order to better develop empirically based prevention and intervention programs (Degnan, Almas, & Fox, 2010).

### **1.1 Risk Factors for Childhood Anxiety**

Some theoretical models of childhood anxiety suggest that the etiology of childhood anxiety is manifested by an interaction of genetic, internal (i.e. temperament, cognitive functioning, emotional functioning) and external (i.e. environmental-parenting, peer relationship) factors; Albano et al., 2003, p. 307) risk factors. Researchers have predominantly studied these factors in isolation and not in relation to each other. In fact, researchers have recognized this to be a major limitation in advancing our understanding of the development of child anxiety (Degnan et al., 2010; Manassis, 2000). As a result, some researchers have suggested that a more detailed analysis of how these risk factors interact with each other in relation to anxiety is needed in order to better understand the inter- relations among variables and further develop prevention and treatment programs for children with an anxiety disorders (Degnan et al., 2010). In this regard, the purpose of this study was to examine the interrelationship of two risk factors, parenting stress and children's attributional style, and determine their relationship in respect to childhood anxious symptoms.

### **1.2 Childhood Anxiety, Parenting Stress and Attributional Style**

Previous research has identified parenting stress and attributional style to be important predictors of anxiety in children (Bell-Dollan et al., 1994; Degnan et al, 2010). Researchers define parenting stress to be related to family stressors prevalent within the parent-child relationship (Pahl, Barrett, & Gullo, 2012). Factors such as traumatic events, conflicts between parents, parenting hassles and low socioeconomic status have been identified as sources for

parenting stress. These stressors affect parenting styles and also put increased pressure on the parents and the child (Pahl et al., 2012).

Attributional style is a habitual way the individual assigns causes to events, to a wide variety of psychological, health, and achievement outcomes (Abramson, Seligman, & Teasdale, 1978). According to prior research, anxious children have the tendency to attribute positive life outcomes to external, specific and unstable causes while attributing negative life outcomes to internal, global and stable causes (Bell-Dollan et al., 1994). Consequently, endorsement of such cognitive attributions can lead to developing negative self-regard (e.g., low self-esteem, lack of self-confidence) and put children at a greater risk for developing anxiety (Bell-Dollan et al., 1994).

### **1.3 Statement of the Problem**

While research has made progress in understanding how parenting stress and children's attributional style impact anxiety to some extent, there are some significant gaps in the literature in understanding how these two risk factors are associated and influence anxiety. One empirical problem is that research has not sufficiently examined whether parenting stress and attributional styles operate independently or in tandem with respect to their impact on anxiety (Muris & Broeren, 2009). In order to address this gap in the research and to move the field forward, Rodriguez (2011) examined the interactions of these two risk factors in relation to anxiety in a 8-12 age sample of children. Her findings indicated that parenting stress and maladaptive attributional style, primarily negative attribution for positive outcomes, independently predicted child anxiety. Furthermore, this maladaptive attributional style also partially mediated the relationship between parenting stress and child anxiety.

Another empirical problem is that there is limited knowledge about the specific moderators relative to these risk factors and anxiety. Moreover, most of these prior researchers have primarily examined these variables in Caucasian children (Muris & Broeren, 2009). Current approaches to child anxiety assessment are modeled upon Western cultural perspectives with the implicit assumptions that these perspectives are also directly applicable to the concerns of children with different ethnic backgrounds (Safren et al., 2000). Given the growing multiculturalism of Canada, ethnic variations need to be considered when assessing and treating children with anxiety, as previous research suggests that parenting styles, cultural beliefs, and disciplinary techniques vary according to ethnicity. These variations could further affect how risk factors impact anxiety (Gershoff et al., 2010). Hence, future research efforts need to include more ethnically diverse samples to further validate these variations. Lastly, there is also limited understanding on the developmental trajectory of anxiety across childhood (Muris & Broeren, 2009). In addition, there is limited understanding on whether the influences of variables like parenting stress and attributional style on child anxiety are age or sex-dependent (Muris & Broeren, 2009). Therefore, there is a need for research to investigate the inter-relationship between parenting stress, attributional style and anxiety, particularly with respect to moderating variables such as age, sex and ethnicity.

#### **1.4. Purpose of the Current Research**

The purpose of the study is to address these empirical problems and limitations. The research plan is to extend Rodriguez's (2011) study by incorporating additional variables that might moderate the inter-relationship among parenting stress, children's maladaptive attributional style and anxiety. A particular focus of this research will be to examine how children's own perception of their parents' stress impact their anxiety relative to their age, sex

and ethnicity, and how parents' reported parenting stress and children's maladaptive attribution relate to anxiety symptomatology.

The study is intended to include an ethnically diverse community-school sample of 8-12 age students and their parents to participate in a research study to examine the inter-relationship of parenting stress, attributional style and anxiety. Once consent was given for the study, parents were asked to fill out questionnaires on parenting stress (*Parenting Stress Index-Fourth Edition, PSI-4*) and their background (e.g. race, cultural affiliation). These questionnaires were sent to students homes' and the parents were asked to return the completed forms in a pre-stamped envelope. The child data collection was conducted within their schools by the primary investigator. In this regard, children were provided with questionnaires to complete relative to childhood anxiety (i.e. *Multidimensional Anxiety Scale for Children- Second Edition, MASC-2*), attribution style (i.e. *Children's Attributional Style Questionnaire*) and their perceptions of their parents' stress (i.e. *PSI- Short Form modified for child reporting*).

### **1.5 Overview of the Thesis**

Chapter two provides a review of the relevant background literature, including a comprehensive presentation of childhood anxiety, parenting stress, and children's attributional style and related variables (e.g., child's perception of their parents' stress, age, sex and ethnic background in relation to childhood anxiety) that are the primary focus of the current study. It concludes with an overview of a statement of the research problem and purpose of the study and presents the research questions and hypotheses. The methods of the research are subsequently presented in chapter three. Chapter four presents the results of the study. Finally, chapter five provides a discussion of the results and the empirical and practical implications as well as the

limitations and significance of the research with respect to future research and theoretical development.

## Chapter Two: Literature Review

### 2.1 Introduction

This chapter begins with an overview of childhood anxiety (i.e., anxiety is defined, historical and theoretical perspectives of anxiety are presented, current literature is reviewed, a description of anxiety symptoms and how they are measured empirically is discussed). The subsequent section will present and discuss the independent primary variables of interest (i.e., children's attributional style, parenting stress, children's perception of their parents' stress) that will be assessed in the present study in relation to childhood anxiety. In addition, it will provide an overview of how these variables have been empirically measured in prior research. The third section focuses on our current understanding of how these variables relate to and predict childhood anxiety and what aspects of these relationships is still unknown, stating the purpose of the current study. In this regard, the various interrelationships that will be examined in the present study among childhood anxiety, children's attributional style, parenting stress and children's perception of their parents' stress are presented. The chapter concludes by posing the major questions and hypotheses that are to be undertaken in the study.

### 2.2 Childhood Anxiety

Anxiety disorders are considered to be one of the most common forms of psychopathology affecting children and adolescents (Costello & Angold, 1995; Costello, Egger, & Angold, 2005). They include problems such as excessive fears that may manifest into behavioral disturbances (American Psychological Association, 2013). Fear is an emotional response to a real or perceived threat, whereas anxiety is anticipation of a future threat. Although fear and anxiety are inter-related, they also differ in terms of physiological reactions, cognitive thoughts and behaviors. Fear is most often associated with surges of automatic arousal and

prepares the body for a flight or fight response triggered by thoughts of immediate danger that most often leads to escape behaviors (American Psychiatric Association, 2013). On the other hand, anxiety is associated with muscle tension and preparation for future danger which often leads to cautious or avoidant behaviors (American Psychiatric Association, 2013).

Transient fears and anxieties are considered to be part of typical development; however for children with anxiety, their fear and anxiety is excessive or persisting beyond what would be considered to be developmentally normal (Muris, Merckelbach, Mayer & Prins, 2011).

Children's normative fears and anxieties manifest into a disorder when their fears and anxieties have persisted for a significant period of time and begin to interfere with their daily academic, social, emotional, and behavioral functioning (Muris et al., 2011). Impairments associated with anxiety in children commonly relate to academic achievement and social-emotional functioning (e.g., developing or maintaining friendships, participating in extra-curricular activities; Last, Hansen & Franco, 1997). Moreover, children with anxiety disorders are at an increased risk for lower self-esteem, physical illness, suicidal ideation and other psychiatric disorders including clinical depression (Woodward & Fergusson, 2001). While the prognosis of childhood anxiety is dependent on various individual and psychosocial factors, it is likely to cause significant developmental and life-adjustment issues if it untreated (Muris & Broeren, 2009).

### ***2.2.1 Historical Context of Childhood Anxiety Disorders***

Fear has been a common topic of interest for psychologists for decades (Albano, Causey & Cater, 2001). In fact, case studies describing childhood fears formed the basis of influential psychological theories like psychoanalytic theory and behaviorism. For example, "Little Hans" (Freud, 1909; 1955) was a famous clinical case study that described a 5-year old boy's phobia of horses. Interest to better understand "Little Hans's" phobia led to the definition and description of

several key unconscious processes operating in the development of ego defense mechanisms of repression and displacement, key concepts leading to the formulation of psychoanalytic theory. Furthermore, this case helped Freud to better conceptualize the "Oedipus complex" which was a key element in the development of Freud's theory of psychosexual development (Albano et al., 2003, p. 280). Similarly in the behaviorism field, the classic case study of "Little Albert" provided early support for the classical conditioning of anxiety and the foundation of behavioral theory (Harris, 1979; Watson & Reyner, 1920). To review, little Albert was initially fearless of white rats or other white furry stimuli. However, when a white rat (a neutral stimulus) was presented to Albert repeated times paired with a loud noise (an aversive stimulus), Albert developed a fear of the white rat (a conditioned response). This fear generalized to other objects that resembled the white rat including cotton. The observations from the "Little Albert" case study formed the basis of the behavioral theory that suggested that various stimuli could trigger fear in individuals.

Although case studies such as these helped to better conceptualize theoretical models of fear and anxiety, the empirical investigation of fear and anxiety were not attended to until the later part of 20<sup>th</sup> century (Albano et al., 2003, p. 280). From 1900 to 1960s, fears and anxiety reactions in children were primarily studied as part of research studies aimed at investigating normative developmental reactions. These research studies indicated that 'subclinical fear' is common among children but it tends to decline with increasing age. Furthermore, studies indicated that the focus of fear also changes with respect to age and that girls in general tend to endorse more fear than boys (Albano et al., 2003, p. 281). The first edition of the Diagnostic and Statistical Manual of Mental Disorders (*DSM*) identified phobias as psychoneurotic reactions

which were explained by a condition involving distress, but the root behavior of distress was not considered outside of acceptable social norms (American Psychiatric Association, 1952).

The *DSM-II* presented anxiety as a pathological state in children and adolescents as exemplified by the inclusion of 'overanxious reaction' as a distinct, diagnostic anxiety disorder for children and adolescents (American Psychiatric Association, 1968). The third edition of the DSM (*DSM-III*) added three distinct disorders of anxiety: 1) separation anxiety disorder; 2) avoidance disorder of childhood and adolescence; and 3) overanxious disorder (American Psychiatric Association, 1980). In fact, the publication of the *DSM-III* represented the first attempt of modern classification system of psychopathology to delineate developmentally appropriate diagnostic criteria for phobias and other anxiety disorders in children and adolescents (Albano et al., 2003, p. 281). Following the publication of the *DSM-III*, there was a marked increase in research studies focusing on the nature and scope of anxiety in children. Current researchers in the field of childhood anxiety assert that the delay in this research movement is likely due to long-standing disagreements within the field as to what constitute as clinical anxiety versus transient developmental fears and anxieties (Albano et al., 2003, p. 282).

### ***2.2.2 Current Conceptualization of Childhood Anxiety Disorders***

The DSM-IV-TR categorizes anxiety disorders with respect to the following categories: 1) separation anxiety disorder; 2) generalized anxiety disorder; 3) social anxiety disorder; 4) obsessive-compulsive disorder (OCD); 5) specific phobia; 6) panic disorder; 7) post-traumatic stress disorder (PTSD); and 8) acute stress disorder; though PTSD and acute stress disorder are less prevalent in children (American Psychiatric Association, 2000). Of note, the recent publication of the DSM-5 (American Psychiatric Association, 2013) has separated OCD, PTSD and related stress disorders into independent, distinct categories.

The current etiology of childhood anxiety disorders follows a complex integrated model that postulates genetic, internal (i.e. temperament, cognitive functioning, emotional functioning) and external (parenting, peer-relationships) factors associated with anxiety disorder (Albano et al., 2003, p. 307). Over the past two decades, research has accumulated empirical evidence to support the genetic basis to many childhood anxiety disorders (Gregory & Eley, 2007). For example, evidence has shown high monozygotic concordance of anxiety disorders. In addition, a recent study examining the genetic influence on anxiety in middle to late childhood in twins indicated that 68% of homotypic continuity in anxiety was explained by genetic factors (Trzaskowski, Zavos, Haworth, Plomin & Eley, 2012). That is, the stability of anxiety-related symptoms over developmental years was largely due to genetic factors, compared to shared environmental factors. Childhood anxiety has also been found to be vulnerable to specific emotional factors like a child's temperament (Degnan, Almas & Fox, 2012). For example, early childhood expression of behavioral inhibition, negative affect and physiological hyper-arousal have all been linked to developing anxiety disorders in late childhood.

The development of childhood anxiety has also been linked to specific cognitive factors. According to Chorpita (2001), children who have a diminished sense of control over their life outcomes are likely to develop a negative affect, which can then increase their likelihood to develop anxiety. Children who perceive that they have less control over their life outcomes are likely to develop increasing worry and engage in avoidant behaviors as they tend to believe that they are not equipped with appropriate skills, resources or support to deal with their everyday stressors (Chorpita, 2001). Furthermore, childhood anxiety has also been associated with biased information styles (e.g., irrational thoughts about how a perceived threat will impact them) and ineffective coping strategies (Albano et al., 2003, p. 307). Finally, environmental factors,

particularly parental variables have been linked to the development and maintenance of childhood anxiety as well. In this regard, excessive parental control, overprotection and lack of warmth have been associated with presence of childhood anxiety (Alnaes & Torgersen, 1990; Chorpita, Brown & Barlow, 1998; Rapee & Hudson, 2001). However, it is unlikely that parental variables independently elicit anxiety; rather, parenting style may interact with child temperament and associated cognitive factors in a way that manifests anxiety (Rapee, 2001). Reciprocally, it is also possible that children's negative affect may evoke intrusive or overprotective parenting behaviors.

The last two decades has seen an increase of research studies examining risk factors for childhood anxiety (Degnan et al., 2010). However, research has predominantly studied these risk factors in isolation and thus, we have a limited understanding on the impact of childhood anxiety development and prognosis when children are vulnerable or exposed to more than one risk factor at a time (Degnan et al., 2011; Manassis, 2000). Increased knowledge on how these risk factors interact relative to childhood anxiety (e.g., moderation versus mediation) might lead to more effective prevention and interventions programs.

Furthermore, there are also debates in the literature as to whether factors like superior cognitive ability make children more or less vulnerable to develop anxiety. Prior research has shown that lower cognitive ability and poor academic achievement predict anxiety in children (Weeks et al., 2014). Hence, some researchers (e.g., Weeks et al., 2014; Woodward, Clark, Bora, & Inder, 2012) argue that higher cognitive ability maybe a possible protective factor against the development of child anxiety. This claim had led researchers to study anxiety in identified gifted children who are recognised to have higher cognitive ability than their same-age peers. Results from these studies had been inconsistent. For example, Martin and colleagues (2010) conducted

a meta-analysis to compare the prevalence of anxiety in gifted vs. non-gifted children. The results from their review suggest that overall, gifted children have significantly lower levels of anxious symptoms compared to non-gifted students. On the contrary, Forsyth (1987) found that gifted female children have higher levels of anxious symptoms in comparison to non-gifted female children, though there was no difference in anxiety levels between gifted and non-gifted boys. In addition, Peterson (2006) suggested that that gifted children are at a greater risk for anxiety as they experience greater levels of social-emotional adjustment issues. Hence, future research is needed to resolve these inconsistencies and better understand the association between higher cognitive ability and child anxiety.

### ***2.2.3 Anxiety Disorders: Descriptions and Symptoms***

Given the fact that anxiety disorders are categorized in terms of their distinct features, it is reasonable to present anxious symptoms related to each anxiety disorder. However, it is important to note that symptoms often overlap across disorders. Despite the classification changes of anxiety disorders in the DSM-5, the current study relies on the DSM-IV-TR classifications to describe the symptomatology of anxiety disorders. This is because the measure (i.e., Multidimensional Anxiety Scales for Children-Second Edition) used to assess children's anxious symptoms in the current study has not been updated yet to reflect the classification changes in the DSM-5. Similarly, to the investigator's knowledge, no other child anxiety measures had been updated till date to reflect the DSM-5's changes either.

Separation anxiety disorder is characterized by excessive, age-inappropriate anxiety and fear of separation from home, family or from those to whom the child is attached. Such fear is displayed through recurrent distress when separation is anticipated or occurs, leading to avoidance of separation situations and behaviors. Examples of avoidance behaviors linked to

separation anxiety include insisting parents to accompany child to birthday parties, school refusal and refusal to participate in over-night camping or recreational activities.

Generalized anxiety disorder (GAD) is primarily characterised by having excessive anxieties and worries about a number of events or activities that persist for at least six months. Presence of a somatic or physiological symptoms like muscle tension, stomach ache or sleep disturbances is required to warrant a clinical diagnosis of GAD in children. Common worries associated with GAD are fear of future academic performance, fear of natural disasters, worry about being physically attacked, bullied or scapegoated by peers as well as worry about family finances, concern about parents' marital conflict and divorces (Albano et al., 2003, p. 292-293).

Social anxiety disorder (formerly known as social phobia) is characterized by marked and persistent fear of one or more social performance situations in which the child worries that embarrassment may occur and as a result, the social or performance situation is avoided or endured with dread. Examples of social anxiety symptoms include fear of reading out loud in class, doing class presentations, asking teachers for help, eating in the cafeteria and participating in gym activities.

Specific phobia on the other hand, is marked by a persistent, stable fear of circumscribed objects or situations. In specific phobia, exposure to the phobic stimulus immediately provokes a distressing, out-of-proportion anxiety response that can lead the child to avoid the phobic stimulus. Common specific phobias reported in children and adolescents include darkness, insects, blood, heights, animals, loud noises and having injuries.

Obsessive-compulsive disorder (OCD) is characterised by intrusive obsessions and compulsions that are time-consuming and cause either significant distress and/or impairment in the child's daily functioning. Commonly reported obsessive thoughts in children and adolescents

are fear of contamination, sexual thoughts, religiosity and aggressive and violent imagery. Some common compulsions in children and adolescents include repetitively washing oneself, checking or arranging things or organizing rituals.

Finally, panic disorder is characterized by the occurrence of at least one unexpected panic attack, followed by a minimum of one the following: 1) persistent fear of experiencing future panic attacks; 2) worry about the implications of the attack or its consequences, or a significant change in behavior related to the attacks.

#### ***2.2.4 Measurement of Anxiety***

Research and clinical practices have seen a development of a variety instruments to measure anxiety in children. The American Academy of Child and Adolescent Academy provides examples of such instruments and they are: 1) clinical interviews (either structured, semi-structured or unstructured) to obtain a comprehensive account of the child's anxiety, related behaviors, emotions and beliefs from both the child and parent perspective; 2) structured or unstructured observation tools to explicitly observe the child's behaviors in context of specific environments; and 3) rating scales and self-reports aimed at providing information about the presence and intensity of anxiety symptomatology in the child. Selection of a particular instrument is dependent on various factors. For example, a clinical interview is often preferred to establish a diagnosis or to rule out an alternative diagnosis. Anxiety-based rating scales and self-reports may be used to evaluate treatment efficacy and measure symptom variety and severity. Finally, clinicians may decide to use observations to plan specific treatment for a child with anxiety.

Anxiety-based rating scales and self-reports provide scores that can be systematically quantified to determine the amount, degree and/or magnitude of anxiety symptoms (Silverman &

Ollendick, 2005). Self-reports allow children with appropriate cognitive development to provide information about their behavior, thoughts and feelings by responding to a series of questions. They are quick to administer, score and are cost-efficient, which makes it a preferred tool for measuring anxiety for research purposes (Spence, 1998). Presently, there are a number of self-and-parent reports that measure overall child's anxiety symptoms and categorize the symptoms relative to anxiety subtypes, based on the DSM-IV-TR taxonomy: 1) *Multidimensional Anxiety Scales for Children -Second Edition* (MASC-2; Marsh, 2012); 2) revised version of the *Screen for Child Anxiety Related Emotional Disorders* (SCARED-R; Muris, Merckelbach, Schmidt, & Mayer, 1999); 3) *Spence Children's Anxiety Scale for Children* (SCAS; Spence 1997, 1998). The SCARED-R was developed with clinically anxious children from the Netherlands (e.g., Muris, Merckelbach, Ollendick, King, & Bogie, 2002). Spence developed the SCAS for clinical and research purposes with community samples of children (aged 8 to 12 years) and its original normative data, psychometric properties and factor structure analyses were obtained through Australian samples of children and adolescents. The MASC-2 on the other hand is the most recently developed measure of child's anxiety and its norms were developed on samples of children and adolescents residing in the United States (March, 2012).

### **2.3 Parenting Stress**

Parenting stress is defined as the degree of stress parents perceive to experience in their roles as parents (Deater-Deckard, 2004). The concept of 'parenting stress' was first conceptualized by Mash and Johnston (1990) as a complex construct composed of cognitive, affective and behavioral components. Parenting stress can result from traumatic events (e.g. death of a loved one), parental conflict, low social support, daily hassles with parenting, specific health and/or psychological conditions of the child, or oneself or other family members and low

socioeconomic status (Pahl et al., 2012). Hence, parenting stress can come about from various life experiences and the degree of subjectively experienced parenting stress is determined by how well parents adjust with respect to their environment and their continuous interaction with their child (Solem, Christophersen, & Martinussen, 2010). As parenting stress can be triggered from various factors, it can have a serious and chronic impact on parents' well-being and overall life-quality. Previous research has shown that parents who experience chronic parenting stress are at risk for depression, anxiety, marital conflicts and loss of employment (Lavee, Sharlin & Katz, 2006).

Parenting stress can also have a significant impact on the parent-child relationship and their children's psychological well-being. For example, parenting stress has been identified as a possible risk factor that may influence the emergence, maintenance and exacerbation of childhood behavioral problems (Crnic & Greenberg, 1987; Margalit & Kleitman, 2006). Researchers posit that highly stressed parents are more likely to engage in negative behaviors like inconsistent or harsh parenting (DeGarmo, Patterson, & Forgatch, 2004) which can increase the likelihood for children to develop or maintain problematic behaviors. Prior research also suggests that parenting stress can be a possible risk for children to develop mood disorders and anxiety (Rodriguez, 2011).

### ***2.3.1 Measurement of Parenting Stress***

Parenting stress has been primarily measured through self-reports, completed by parents or caregivers. In North America, there are few self-report instruments available to assess parenting (e.g., *Parenting Stress Index [PSI]*, *Parental Stress Scale [PSS]*). Abidin developed the first edition of PSI in 1983 to measure parenting stress through both 'child-characteristics' (e.g., child's mood) and 'parent-characteristics' (e.g., parent's social isolation). Now in its fourth

edition, it's intended for use with parents of children 3 months to 12 years old. The PSI is a commonly used scale among North American researchers and clinicians as it allows researchers and clinicians to measure parenting stress across various life domains as well as compare scores with other community and clinical populations (Abidin, 2012).

### ***2.3.2 Parenting Stress and Childhood Anxiety***

Until recently, parenting stress had been a topic of interest mostly with respect to externalizing disorders in children (e.g., attention-deficit/hyperactivity and oppositional defiant disorders). Limited research has examined its relationship to children's internalizing disorders such as depression and anxiety (Rodriguez, 2011). However, recently researchers in the field have been interested in exploring the nature and score of parenting stress relative to anxiety in children. These studies had linked parenting stress with the development and/or maintenance of childhood anxiety (Bayer, Sanson, & Hemphill, 2006; Costa, Weems, Pellerin, & Dalton, 2006), and as such, parenting stress has been identified as a possible risk factor for childhood anxiety. In this regard, Pahl and colleagues (2012) have found that parenting stress is a predictor of child's anxiety in pre-school aged children. Furthermore, not only did parenting stress independently predicted anxiety among the pre-schoolers, but its effect on anxiety was partially mediated by child's behaviourally inhibited temperaments. In addition, research has also illustrated that anxious children with parents reporting elevated parenting stress did worse within anxiety treatment programs compared to children from families with lower levels of parenting stress (Crawford & Manassis, 2001). Elevated parenting stress is likely to impact the overall family functioning and may lead parents to engage in inconsistent or problematic parenting behaviors (e.g., less warmth, more control) making children more vulnerable to developing or aggravating their anxiety. Parenting stress itself may increase worrying and anxiety in parents and that may

consequently lead parents to engage in anxious parenting styles and exercise greater parental control (Albano et al., 2003). Parenting behaviors such as these have been shown to impact children's confidence, coping styles and efficacy and promote avoidant behaviors in children (Wolfradt, Hempel & Miles, 2003). Moreover, children of parents who have parenting stress are also at a higher risk to experience emotional or physical outbursts and tension at home which can impact their life adjustment and coping skills, emotional stability, attributional style and worrying tendencies (Albano et al., 2003). It is also important to consider the bi-directionality of the relationship between parenting stress and childhood anxiety. In this regard, it is reasonable to posit that the parent and child reciprocally influence each other which can trigger stress within the parent-child system (Deater-Deckard, 2004). Hence, it is important to keep in mind that parenting stress does not necessarily cause anxiety or related psychopathologies in children. In fact that it is also very well possible that increasing demands arising from caring for children with anxiety or other psychopathologies can play a role in exacerbating parenting stress across time (Williford et al., 2007).

While it is understood that parenting stress is a possible risk factor for childhood anxiety, we have limited understanding about how parenting stress interacts with other child-anxiety associated risk factors (e.g., low self esteem) to trigger, maintain or exacerbate a child's anxiety. For example, parenting stress could place additional stress on children who have negative affect temperament and ineffective coping styles and hence, can further exacerbate their anxious symptoms (Pahl et al., 2012). Likewise, factors like high self-esteem, peer support and positive affect temperaments could also provide resiliency to children and reduce the impact of parenting stress on anxiety (Muris & Broeren, 2009). Additionally, there is a limited understanding about how children's demographic characteristics (e.g., age, sex, ethnicity) moderate or mediate the

impact of parenting stress on their anxiety. Hence, future research is warranted to explore this gap in the literature. Finally, most research in this area has predominantly relied on parents' reports to assess parenting stress (e.g., via *Parenting Stress Index* scale, PSI) and child's anxiety to understand the relationship between these two variables (Rodriguez, 2011). This dependence on parents' reports suggests the need to have other sources (i.e. children) to measure parenting stress and child's anxiety in order to have a more comprehensive conceptualization of parenting stress and its relationship with anxiety across other informants.

## **2.4 Children's Attributional style**

Attributional style is considered to be a habitual way the individual assigns causes to events, and to a wide variety of psychological, health, and achievement outcomes (Abramson, Seligman, & Teasdale, 1978). Attributional style is a psychological construct that has been conceptually linked to the development and maintenance of internalizing disorders in individuals (Abramson, Metalsky et al., 1989; Abramson, Seligman, et al., 1978; Gladstone & Kaslow 1996). The type of attributional style endorsed by an individual is thought to determine the individual's vulnerability to developing habits of learned self-helplessness (Miller & Normal, 1979). Generally, individuals susceptible to internalizing disorders like depression and anxiety tend to have maladaptive attributional style in which they attribute positive life events to external factors and attribute negative life events to personal, internal causes. Having a maladaptive attributional style makes an individual more vulnerable to developing a perceived absence of control over life events and outcomes that occur in their lives (i.e., learned helplessness) which then contributes to mood disorders and anxiety (Miller & Normal, 1979).

The formulation of attributional style from learned helplessness theory spans across dimensions: (1) internal-external, (2) stable-unstable, and (3) global-specific (Joiner-Jr. &

Wagner, 1995). An internal attribution leads an individual to assign causes to life events in self-referent terms (i.e., blames or credits a personal factor as to why the positive/negative event has occurred, respectively) while an individual who has an external attributional style assigns causes of events to external factors beyond the control of the self (Joiner-Jr. & Wagner, 1995). For example, an internal attribution for failing a test (negative life event) might be "I failed a test because I am stupid" whereas an external attribution might be "I failed a test because noises in the hallway distracted me."

A person with a stable attributional style typically reasons that the causes of life events are due to permanent, static and constant factors, while a person with an unstable attributional style reasons that the causes of events are typically due to temporary, non-stable factors (Joiner-Jr. & Wagner, 1995). For example, a stable attribution for a negative life is "I failed the test because teachers always make hard tests" while an unstable attribution for the same event is "I failed the test because teachers sometimes make hard tests." "Always" here indicates that individual assumes that cause to the event (i.e., failing a test) is due to a permanent factor that will not change or modify in the future, while "sometimes" suggests the cause to an event is a temporary factor. Finally, a person with a global attributional style believes that causes of life events are pervasive and spans several situations, whereas a person with a specific attributional style reasons that causes of life events are limited to specific factors or situations. For example, a global attribution for a positive life event is "I got perfect on a test because I am smart" because "being smart" is likely to influence many other situations and life outcomes. Alternatively, a specific attribution for the same positive event can be "I got 100% on the test because I am good in the subject that the test was in" as it is assumed that the same, positive outcome was only associated with that specific situation (i.e., the subject). Research in the past couple of decades

had relied upon these dimensions to better understand an individual's attributional style and its relation with learned helplessness and psychopathology (Rodriguez & Pehi, 1998).

In regard to child development research, attributional style has been shown to be an influential variable relative to children's adjustment in a variety of areas, including self-esteem, academic motivation and the emergence of anxiety and depression (Rodriguez, 2011). For instance, the results of research by Chan and Wong (2011) indicate that a maladaptive attributional style for negative life events significantly predicts greater shyness and low self-esteem in children age 7-11 years, suggesting the need for teachers and parents to learn how to recognize and mitigate negative, maladaptive attributional style within children in school and home. In addition, it has been shown that gifted, female students are more likely to consistently attribute their ability over their efforts and environmental factors for academic achievement (e.g., attributing their abilities for both test success and failures) indicating that a stable, internal attributional style is impacting their self-perception for their academic performance (Tirri & Nokelainen, 2011). Furthermore, research has also determined that a maladaptive attributional style also predicts depression in children (Rodriguez & Pehi; 1998; Lau, Belli, Gregory Napolitano & Eley, 2011; Reddy, Wolfe & Sharp, 2013). Maladaptive attributional style can lead children to blame themselves for negative life outcomes as they tend to believe that they face these negative life outcomes due to their own faults and these outcomes will be present in their lives constantly and permanently (Joiner-Jr. & Wagner, 1995).

Furthermore, researchers in the field had also taken an interest to examine sex differences in children's attributional style (Noelen-Hoeksema & Girgus, 1994). Results from studies investigating sex differences in children's attributional style had been inconsistent. Particularly, several investigators reported no sex differences in attributional style in childhood (e.g., Curry &

Craighead, 1990, Schoenherr, Brown, Baldwin, & Kaslow, 1992). Other researchers, however, have found sex differences in the relation between attributional style and self-report measure of internalizing symptoms (e.g., Gladstone, Kaslow, Seeley, & Lewinsohn, 1997; van Beck & Debus, 2008; Gluck, Lynn, Dritschel & Brown, 2014). Findings from these studies are also equivocal, some report a stronger association between attributional style and internalising symptoms for girls (e.g., Craighead, 1991, Gluck et al., 2014), whereas other reveal a stronger attributional style/internalising symptoms relation for boys (e.g., Hops et al., 1990, Nolen-Hoeksema et al., 1992). Given the inconsistency in the research examining sex differences in children's attributional style, further research is warranted to resolve inconsistencies in the literature.

#### ***2.4.1 Measurement of Children's Attributional style***

Children's attributional style has been primarily measured through self-reports through two approaches (Rocio-Fernandez-Ballesteros, 2002). One approach takes a 'global' perspective that assumes attributional style broadly applies across a variety of situations and domains (e.g., child's academic performance, family functioning, recreations and daily life events). Examples of 'global' measures of attributional style include: *Attributional Style Questionnaire* (Peterson et al., 1982); *Attributional Style Assessment Test* (Anderson & Riger, 1991); *Children's Attributional Style Questionnaire* (Seligman et al., 1984); and *Content Analysis of Verbatim Explanations* (Peterson, 1992). The 'global' measures were developed to test predictions from the theory of learned helplessness with respect to internal-external, stable-unstable and global-specific dimensions of attributional style. Of note, *Children's Attributional Style Questionnaire* (CASQ) is the most widely used to measure 'global' attributional style in children (age 8-18) for research purposes. It has been classified as a 'forced-choice' measure where respondents select a cause to

a life event from a list of potential explanations (Rocio-Fernandez-Ballesteros, 2002). One benefit of 'forced-choice' formats is that it restricts the causes of life events to only attributions of theoretical interest. In addition, it is quick to administer and score which makes it a preferable tool for research (Rocio-Fernandez-Ballesteros, 2002).

Another approach for assessing attributional style involves more specific measures. These specific measures assess attributional style relative to specific life domains such as work, school, and interpersonal relationships (Rocio-Fernandez-Ballesteros, 2002). Examples of specific measures include: *Academic Attributional Style Questionnaire* (Peterson & Barrett, 1987); *Organizational Attributional Style Questionnaire* (Kent & Martinko, 1995); and *Relationship Attribution Measure* (Bradbury & Fincham, 1990). Overall, research has identified several issues with the current measurement system of attributional style for research and clinical practices (Rocio-Fernandez-Ballesteros, 2002). First, there is a lack of variation for specific measures of attributional style and this may be problematic for understanding how attributional style impacts specific life domains. Second, there is no consensus regarding about how particular dimensions (i.e., internal-external; global-specific; and stable-unstable) of attributional style inter-relate and how each dimension relates to variant childhood psychopathology. Future research is warranted to better understand how each dimension of attributional style relates to different childhood pathologies to better inform current prevention and intervention practices.

#### ***2.4.2 Children's Maladaptive Attributional style and Childhood Anxiety***

A maladaptive attributional style has been suggested to be a risk factor for childhood anxiety (Houston, 1995; Rodriguez & Pehi, 1998). Prior research suggests that children with anxiety have the tendency to attribute negative events and life outcomes to internal, global and stable causes and attribute positive life events and outcomes to external, specific and non-stable

causes (Bell-Dollan et al., 1994). For example, Kagan, MacLeod and Pote (2004) examined a sample of 11-17 aged anxious adolescents to determine their attributional style. In line with previous findings, their results showed that in comparison to the control group, adolescents with anxiety reported significantly more internal stable and global reasons for negative events and showed a trend towards the opposite pattern for positive events. Furthermore when maladaptive attribution was assessed in children with co-morbid depression and anxiety, Houston (1995) found that maladaptive attributional style was more predictive of anxiety than depression. Attributing negative life events and outcomes to personal/internal and causes and believing that such negative outcomes will occur across various situations often leads children to develop negative self-regard like low self-esteem and self-confidence and puts them at a greater risk for developing less effective coping mechanisms and problem-solving strategies to deal with their daily events. As a result, maladaptive attributional style increases their worrying tendencies, promotes avoidant behavior in children and put at a risk for anxiety (Bell-Dollan et al., 1994).

Prior research suggests that maladaptive attribution is likely to interact with other factors to operate on anxiety, rather than predicting anxiety independently (Muris & Field, 2009). For example, Rodriguez (2011) showed that maladaptive attributional style endorsed by 8-12 year olds mediated the relationship between parenting stress and their anxiety. In addition, Schleider and colleagues (2013) demonstrated that children's maladaptive attributional style mediated the prediction between perceived maternal control and anxiety in 10-14 year olds. The results of these studies suggest that maladaptive attribution is likely to be a mechanism that determines how a risk factor such as parenting stress triggers or maintains anxiety in children. Future research is required to verify whether maladaptive attributional style mediates the prediction between risk factors such as parenting stress, maternal control and anxiety in other community

and clinical populations, particularly in respect to children's demographic characteristics like sex, age and ethnicity. Increased understanding of how maladaptive attributional style interacts with other risk factors in various populations to predict anxiety will increase the efficacy of our existing prevention and intervention programs for childhood anxiety (Muris & Field, 2008).

## **2.5 Children's Perception of their Parents' Stress**

The variable of children's perception of parenting stress is aimed at measuring children's views on the degree and type of stress they perceive their parents to experience in their roles as parents. Similar to the construct of parenting stress, it aims at measuring the degree and type of stress that children perceive their parents are experiencing due to their own personal characteristics or demands (e.g., their sleeping /eating schedule, their mood, etc.) plus the stress that their parents may encounter in their personal domains (e.g., health, mood, interpersonal problems). To author's knowledge, the construct of children's perception of their parents' stress has not been empirically explored to date. Consequently, there is presently no instrument available to measure this construct.

### ***2.5.1 Children's Perception of Parenting Stress and Childhood Anxiety***

Considering that parenting stress and children's maladaptive style interact with each other to predict anxiety, prior research has emphasized the need to specifically examine children's perception of their parental stress with respect to childhood anxiety in order to better understand this inter-relationship (Rodriguez, 2011). It is possible that children who perceive their parents to experience elevated stress are likely to develop greater worrying tendencies which might trigger or exacerbate their existing anxiety. Additionally, children's anxiety might also be exacerbated if they attribute their parents' stress to internal, specific and global causes. Finally, it is important to compare the level and type of parental stress reported by parents and children. If it is found that

children with anxiety are reporting increased parental stress compared to the level of stress reported by their parents, then this should be considered in anxiety intervention programs.

## **2.6 Statement of the Problem and Purpose of the Study**

The literature review presented in the chapter has highlighted the empirical need to examine risk factors of childhood anxiety and their inter-relationship in order to better understand the development and maintenance of childhood anxiety. The empirical research has also indicated that the direct and indirect effects of risk factors on childhood anxiety (e.g., parenting stress and children's maladaptive attributional style) need to be further investigated. In this regard, Rodriguez (2011) has taken the lead in addressing this gap in the literature by investigating the effect of parenting stress and children's attributional style on their anxiety in 8-12 year olds and their parents. Her results indicated that while parenting stress and children's maladaptive attributional style independently predicted child's anxiety, children's maladaptive attributional style also partially mediated the relationship between child anxiety and parenting stress. The purpose of the present study partially is to replicate Rodriguez's study in a Canadian community sample of children aged 8-12 year olds and their respective parents or caregivers, in order to examine the inter-relationship of parenting stress, children's maladaptive attributional style and anxiety. In addition, the plan is to examine the effect of child's age, sex, ethnic orientations and their own perception of their parents' stress with respect to this inter-relationship. Unlike Rodriguez (2011), the present study will use multi-informant design to incorporate both parents' and child's perception of the child's anxiety in examining this inter-relationship. The present study is considered to be particularly important given the rising multiculturalism within Canada and our lack of understanding relative to how ethnicity might influence parenting stress, attributional style and childhood anxiety.

### **2.6.1 Research questions and hypotheses**

#### *Question and hypothesis one*

*Is there a significant relationship between parent-reports of their children's anxious symptoms and child self-reports of children's anxious symptoms?* In concordance with prior research suggesting a discrepancy between parent and child reports of the child's psychological symptoms, as well as child's anxiety concerns (DiBartolo, Albano, Barlow, 1998; Frick, Silverhorn & Evans, 1994; Miller et al, 2014), it is hypothesized that there will be no significant relationship between these two variables.

#### *Question and hypothesis two*

*Is there a significant relationship between parent-reported parenting stress and children's anxious symptoms?* In line with prior literature, it is expected that there will be a significant relationship between parenting stress and both parent and child self-reports of children's anxious symptoms.

#### *Question and hypothesis three*

*Is there a significant relationship between children's attributional style and their anxious symptoms?* In accordance with previous research studies that have indicated that children with anxiety tend to endorse maladaptive-attributional style, it is expected that there will be a significant relationship between children's maladaptive attributional style and anxious symptoms

#### *Question and hypothesis four*

*Is there a significant relationship between child's perception of parental stress and their anxious symptoms?* It is hypothesized that there will be a significant relationship between children's perception of parental stress and anxious symptoms. Though no previous research has

examined this relationship, it is expected that children who perceive their parents to experience increasing stress are likely to have more anxious symptoms.

*Questions and hypothesis five*

*Is there a significant relationship between child and parent perception of parental stress?*

As noted earlier, children's perception of parental stress has not been examined in the research literature. It is predicted that the relationship between these two variables will be significant for older children as their cognitive maturity is expected to have a better insight and awareness of the stress experienced by their parents.

*Question and hypothesis six*

*Does parenting stress predict children's anxious symptoms?* Consistent with previous research studies examining parent perception of parenting stress with respect to children's anxious symptoms (Rodriguez, 2011; Pahl et al, 2012), it is hypothesized that parent perception of parenting stress will significantly predict children's anxious symptoms.

*Question and hypothesis seven*

*Does children's attributional style predict their anxious symptoms?*

Consistent with prior studies examining children's maladaptive attributional style with respect to children's anxious symptoms (Rodriguez, 2011; Hudson, 1995), it is hypothesized that Canadian children's maladaptive attributional for both positive and negative life events and outcome will significantly predict children's anxious symptoms.

*Question and hypothesis eight*

*What is the inter-relationship between child's anxious symptoms, attributional style and child and parent perceptions of parenting stress?* Similar to Rodriguez (2011) study results, it is expected that children's maladaptive attributional style will partially mediate the relationship

between parent perception of parenting stress and child's anxious symptoms. Again, children's perception of parental stress have not been studied in the literature yet. Nonetheless, children's perceptions of parental stress are likely to be related to parents' perceptions of their stress. In addition, children's perceptions of parental stress are also likely to be shaped by their cognitive attitudes and beliefs of how they view and perceive things in their environment, generally. As such, children's perception of parental stress is likely to be associated with their anxiety, and this relationship is likely to be mediated by their maladaptive attributional style as well.

*Question and hypothesis nine*

*Are there sex, age, and ethnic differences with respect to parental stress, child's attributional style and child's anxious symptoms?* No previous study has examined the inter-relationship between child's anxious symptoms, attributional style and parent perception of parental stress with respect to children's age, sex and ethnicity. However, considering the sex differences seen in prior research (e.g., Gladstone, Kaslow, Seeley, & Lewinsohn, 1997; Gluck, Lynn, Dritschel & Brown, 2014; van Beck & Debus, 2008) between attributional style and internalising symptoms, there is predicted to be a significant difference in the levels of attributional style between male and female child participants.

*Question and hypothesis ten*

*Are there any differences with respect to parenting stress, child's attributional style and child's anxious symptoms between schools and their respective educational curriculum (i.e., gifted vs. non gifted program)?* No previous study has directly compared the overall means of parenting stress, child's attributional style and child's anxious symptoms between identified and non-gifted students and their parents in an empirical design. Literature suggests that gifted students may struggle more in their social-emotional adjustments compared to non-gifted

students (Peterson, 2006), which in turn may put greater stress on their parents. However, on the other hand, research also suggests that gifted students have lower levels of anxiety than non-gifted students. Hence, it is hypothesized that there will be some overall mean differences with respect to parenting stress, child's attributional style and child's anxious symptoms between schools and their respective gifted vs. non-gifted educational curriculum.

## Chapter Three: Methods

### **3.1 Introduction**

This chapter discusses the methods used in this study to address the specific research questions and hypotheses stated in chapter two. To this end, the chapter first provides a description of the data source and study participants, followed by detailed reviews of the measures employed in the study. Subsequently, the data collection procedures and research design of the study are presented. Finally, the chapter will end with a discussion of the preliminary and primary data analysis procedures used to address the study's research questions.

### **3.2 Participants**

#### ***3.2.1 Child Participants***

One hundred and seventy four child participants (71 females; 103 males) ages 8-12 were recruited from two public schools in Alberta, Canada. The age distribution of child participants were as followed: 16 (age 8); 39 (age 9); 48 (age 10); 49 (age 11); 22 (age 12). In addition, their grade distribution was as listed: 20 (Grade 3); 38 (Grade 4); 48 (Grade 5); 50 (Grade 6) and 18 (Grade 7).

#### ***3.2.2 Parent Participants***

One hundred and nineteen parents (104 mothers; 3 fathers; 12 did not report their sex on the study questionnaires) participated in the study. The age distribution of reporting parents (parent who completed the study questionnaires) were as followed: 1 (31-35 age group); 20 (36-40 age group); 57 (41-45 age group); 35 (46-50) age group); and 6 (51-55 age group). Further details on child and parent participants' demographics are presented on the subsequent chapter.

### 3.3 Measures

#### 3.3.1 *Multidimensional Anxiety Scale for Children-Second Edition (MASC-2)*

The Multidimensional Anxiety Scale for Children-Second Edition (MASC-2; March, 2012) was administered to measure children's anxious symptoms through both self and parent reports. The MASC-2 assesses anxiety symptoms across multiple domains as addressed in the DSM-IV-TR for school-aged children and adolescents. It is a common assessment tool for anxiety for both clinical and research settings (Marsh, 2012). It is composed of both self and parent reports, designed for youth aged 8-19, consisting of 50 items, presented in a Likert scale and responses ranging from "Never" (0) to "Often" (3). Responses are summed and converted to standardized T-scores that adjust for age and gender, with higher MASC-2 T-scores indicative of more severe anxious symptomatology. The MASC-2 also generates individual anxiety scores within six factors (Separation Anxiety/Phobia, Generalized Anxiety, Social Anxiety, Physical Symptoms and Harm Avoidance). The scale also provides a score for Inconsistency Index that indicates the level of inconsistency between items in the rater's response on the MASC-2.

The MASC-2 distinguishes between anxious and non-anxious children. A few examples of the MASC-2 items are presented in Table 3.1. The MASC-2 is reported to have adequate convergent and divergent validity. In terms of internal consistency, the MASC-2 manual reports coefficient alphas of 0.92 and 0.89 for the overall total score in the self-and parent-report samples, respectively. Furthermore, the coefficient alphas of internal consistency for scales and subscales fall in the 0.76 to 0.79 range for both self-and-parent report samples. In addition, the manual also reports very good test-retest reliability; the alpha coefficients for overall total scores are 0.89 and 0.93 for self-and parent reports, respectively. Finally both parent and self-reports of

the MASC-2 were administered to clinical and non-clinical population to illustrate its good discriminative validity.

### ***3.3.2 Parenting Stress Index-Fourth Edition (PSI-4)***

The Parenting Stress Index-Fourth Edition (PSI-4; Abidin, 2012) was administered to measure parent-reported parenting stress. The scale is a 101-item plus *Life Stress* sub-scale designed to evaluate the magnitude of stress in the parent-child system. The items on the PSI-4 inquire about stressors associated with the parent, their children, and the situation, producing a Total PSI-4 score. The PSI-4 also generates separate scores for parent and child domains to distinguish stressors in these respective areas. In respect to the *Life-Stress* sub-scale, responders are asked to report if they have experienced any of the life events from a given list. Examples of these life events included divorce, separation, going into financial debt, and a particular score was assigned to each of these life events (e.g., 7 points for divorce, 4 points for going into debt, etc.) and then independent scores were summed to obtain a total overall score for life stress. A few examples of PSI-4 items from each of these subscales are presented in Table 3.1.

The PSI-4 manual (Abidin, 2012) reports alpha reliability coefficients ranging from 0.78 to 0.88 for the subscales of the child domain and 0.75 to 0.87 for the subscales of the parent domain. The reliability coefficients for the two domains (child, parent) and the Total Stress subscale were reported to be 0.96 or greater, indicating high degree of internal. The PSI-4 was also administered to different populations (at-risk families, teenaged-parents, parents with children having various externalizing and internalizing disorders) to obtain adequate validity of the measure. Lastly, the manual also reports good convergent validity with related measures (Abidin, 2012).

### 3.3.3 *Children's Attributional style Questionnaire (CASQ)*

The Children's Attributional style Questionnaire (CASQ; Kaslow, Tanenbaum, & Seligman, 1978) was used to assess students' attributional style along three dimensions (internality, stability and globality). The measure consists of 48 items and the items are based on hypothetical situations, with half of the items involving negative outcomes, and half positive outcomes. It is designed for children aged 8 to 18. Respondents select one of two preferred choices to state why they think each hypothetical situation happened. A few examples of CASQ-2 items from positive and negative outcome subscales are presented on Table 3.1.

The CASQ generates scores across all positive outcome events (a CASQ Positive Total) and across negative outcome events (a CASQ Negative Total). A CASQ Total Composite is computed by subtracting the Negative Total from the Positive Total. Lower Positive Total and Total Composite scores and higher Negative Total scores indicate more maladaptive attributional style (Rodriguez, 2011). The CASQ is reported to have adequate level of internal consistency, with coefficient alphas at 0.73, 0.71, and 0.66 for Total Composite, Positive Total, and Negative Total score, respectively. Furthermore, in terms of validity properties, the CASQ scores have been compared with related measures of internalizing symptoms (anxiety, depression) and with measures assessing the learned helplessness model, which is a cognitive, etiological model to explain the emergence of internalizing symptoms (Rodriguez, 2011). In addition, previous psychometric analyses of the scale (e.g., Nolen-Hoeksema, Girgus, & Seligman, 1986, 1992; Seligman et al., 1984) revealed moderate level of test-retest reliability (0.61 and 0.35 for the overall composite over 3 and 12 months, respectively). Furthermore, test-retest correlations for the CASQ tend to increase with age (Nolen-Hoeksema et al., 1986, 1992).

### ***3.3.4 Children's Perception of Parents' Stress***

The Children's Perception of Parents' Stress (CPPS) was administered to assess children's understanding and awareness of their parents' stress. This is a novel exploratory scale, created by the primary investigator as the current research literature lacks a scale of such a nature to assess this variable. The items (36 items) from the PSI-3 (Short Form) were adapted to obtain children's perspective of their parents' stress and presented on a Likert scale and responses ranging from "Strongly Agree (2)" to "Strongly Disagree (-2)". Similar to PSI-4, the CPPS was representative of items assessing children's perspective of the stress that they believe their parents experience in their interpersonal lives (i.e., parent domain) as well as the stress that they believe is induced by them directly in the parent-child relationship (i.e., child domain). Examples of few items of the CPPS are presented in Table 3.1. Raw scores are calculated by adding up the items, with higher scores indicating greater level of parenting stress perceived by children.

### ***3.3.5 Demographic Form***

The demographic form was created by the principal investigator to obtain demographic information of the participating children and their parents. In reference to child participants, the following information is included: sex, ethnicity, place of birth, number of years living in Canada, and the number of years they have been speaking English. Additionally, the form also requests the participating parents to provide information regarding their age, highest levels of education completed, employment, number of years they have lived in Canada if they were not born in the country and as well as the language(s) spoken at home. A sample of the demographic form is attached as Appendix A.

Table 3.1. *Sample items from the study measures.*

Measure	Examples of Items
MASC-2	<p>Self-Report:  <i>"I feel tense or uptight"</i>  <i>"I worry about getting called on in class"</i>  <i>"I'm afraid that other people will think I'm stupid"</i></p> <p>Parent-Report:  <i>"My child feels tense or uptight"</i>  <i>"My child worries about getting called on in class"</i>  <i>"My child is afraid that other people will think I'm stupid"</i></p>
PSI-4	<p>Child-Domain  <i>"Leaving my child with a babysitter is usually a problem"</i></p> <p>Parent-Domain  <i>"I feel trapped by my responsibilities as a parent."</i></p> <p>Life-Stress  <i>"During the last 12 months, have any of the following events occurred in your immediate family?"</i>  1. <i>Divorce</i>  2. <i>Lost job</i>  3. <i>Income decreased substantially</i></p>
CASQ	<p>Positive Outcome:</p> <p><u>Internality-Dimension</u>  <i>" You play a game with some friends and you win</i>  A. <i>No one I know plays that game well.</i>  B. <i>I play that game well"</i></p> <p><u>Stability Dimension</u>  <i>" All your friends catch a cold except you</i>  A. <i>I have been healthy lately.</i>  B. <i>I am a healthy person."</i></p> <p><u>Global Dimension</u>  <i>" You get an "A" on a Test</i>  A. <i>I am smart</i>  B. <i>I am good in the subject that the test was on"</i></p> <p>Negative Outcome:</p>

Internality-Dimension*"Your pet gets run over by a car**A. I don't take good care of my pets**B. Drivers are not cautious enough"*Stability Dimension*" You fail a test**A. Teachers make hard tests**B. Sometimes teachers make hard tests"*Global Dimension*" A person steals money from you**A. That person is dishonest**B. People are dishonest."*

CPPS

*"My parents often feel that they can handle thing very well"**"My parents feel alone without friends"**"I make more demands on my parents than most children"***3.4 Design and Procedure**

The present study followed a cross-sectional, correlational design, meaning that data on all variables were collected at one time point and under the same condition for all participants. Initially, ethical approval to carry out the study was obtained from the Conjoint Faculties Research Ethics Boar at University of Calgary. Upon obtaining ethics, two public Charter schools in Calgary were contacted to obtain permission to conduct the study within those schools. One of the two participating schools had a specialized educational curriculum which was intended for identified gifted students.

Following the approval from the participating schools to conduct the research, the primary investigator sent home consent forms and an accompanying information letter to all grade 3-7 students in the two schools. The parents or guardians were asked to read and sign the consent forms if they agreed to participate in the research. They were also asked to return the

signed consent form to their children's homeroom teachers. See Appendix B for a copy of the consent form and information letter. The homeroom teacher then contacted the primary investigator to pick up the signed consent forms from the schools.

### ***3.4.1 Data Collection from Child Participants***

Data collection from child participants involved obtaining self-report information. The data collection for child participants took place in their respective schools, under the direction of the primary investigator. The primary investigator worked with school administrators and teachers to designate a specific time slot to pull participants out from their classrooms for the research. Participants were provided with their own research package (each with a unique identifying participant number) containing the following questionnaires: *MASC-2 (Self-Report)*; *CASQ* and *Children's Perception of their Parents' Stress*. The primary investigator either obtained verbal (for children age 8-10) or written (for children age 11-12) assents before participants were instructed to complete the research package. Participants read the questionnaire items independently but they were encouraged to ask questions to the primary investigator if they needed further clarification on any of the items. On average, each data collection session was consisted of 6-10 child participants. For every session, about one-to three child/children required clarification on few questionnaire items.

Child participants completed questionnaire items by either filling in bubbles or circling their preferred responses using a pen or pencil. Upon completion, participants handed over their research packages to the primary investigator. The primary investigator then placed the research packages in envelopes to maintain anonymity. Participants took between 25-45 minutes to complete the questionnaires.

### ***3.4.2 Data Collection from Parent Participants***

Data collection from parent participants also involved collecting information about themselves as well as their child. Research packages for parents (each with a unique identifying participant number corresponding to their child) were sent home with children from their schools. In addition to the research questionnaires, the package also contained an information letter for parents that outlined what they had to do as part of their participation in the research. See Appendix C for a copy of the instructional letter. The letter also contained the primary investigator and her supervisor's contact information in case parents had any questions or needed further clarification on any questionnaire items. The primary investigator or her supervisor did not receive any notifications requesting clarifications for questionnaire items. The research package also included a pre-stamped envelope with the primary investigator's mailing address and parents were asked to place the completed questionnaires in the envelope and mail them to primary investigator. The questionnaires in the package included the *MASC-2 (Parent-Form)*; *PSI-4*; and a demographic form. Parents completed questionnaire items by either filling in bubbles or circling their preferred responses using a pen or pencil.

### ***3.4.3 Data Scoring***

Information collected from the *MASC-2* (Self-Reports and Parent Forms) were input in an online scoring software operated by the Multi-Health Systems to obtain T-scores for total anxiety. In regard to the scoring the information from the *PSI-4*, raw scores were obtained from calculating the item scores from the corresponding *PSI-4* scoring sheet and then consulting the *PSI-4* Manual to obtain respective T-scores. The scoring guidelines as outlined by the authors of the *CASQ* were followed to calculate the scores for children's attributional style. Finally, the item scores from the Children's Perception of Parents' Stress were hand scored and calculated.

The primary investigator looked over the questionnaires twice to double check the accuracy of the information entered for the online scoring software or calculated for hand scoring. A research assistant hand scored about 40 of the CASQ and the PSI-4 forms, and the scores were verified by the primary investigator upon completion. Once the questionnaires were scored, the scores and information obtained from the demographic form were input into an IBM-Statistics 22.0 (SPSS; IBM-SPSS, 2013) file by the primary investigator.

### **3.5 Data Analysis**

#### ***3.5.1 Preliminary Analyses***

Initial descriptive analyses (i.e., the mean, mode, median, standard deviation, skewness and kurtosis) were conducted to assess the normality of the distribution of each study variable (child and parent reported anxious symptoms, children's attributional style, and parent-and child reported parenting stress). The results of these analyses determined whether appropriate parametric tests (e.g. Linear Regression; MANOVA) could be conducted to examine main and/or interactive effects of the independent variables (age, sex and ethnicity) on the dependent variables. Reliability analyses for the measures used in this study were calculated as an estimate of their internal consistency reliability with this study's sample.

#### ***3.5.2 Primary Analyses***

Pearson-product moment correlations were computed to examine whether there is a significant correlation between each of the independent variables (i.e., parent-reported parental stress; children's attributional style children's perception of parental stress) and the dependent variable (child and parent-reports of the child's anxious symptoms) as well as to evaluate if there was any consistency in self vs. parent reports of children's anxious symptoms. Univariate or multivariate linear regression was conducted to examine whether the independent variables

predicted the dependent variables. In addition, a similar methodology was conducted to further examine whether children's attributional style mediated the relationship between parent-reported parenting stress and children's anxious symptoms as well as the relationship between children's perception of parental stress and children's anxious symptoms.

Finally, a three-way between groups MANOVA tested age, sex and school/educational curriculum differences in respect to parent-reported parenting stress, children's attributional style and children's anxious symptoms. Similar statistical tests were conducted to examine the effect of ethnicity on parent-reported parenting stress, children's attributional style and children's anxious symptoms as well.

## Chapter Four: Results

Chapter four presents the results of the current study. The chapter initially outlines the preliminary results, which includes sample characteristics, data inspection and descriptive analysis. The results obtained from the primary analysis methods are organized according to specific research questions.

### 4.1 Preliminary Analyses

**4.1.1 Sample Characteristics.** One hundred and seventy-four child participants and one hundred and nineteen parent participants participated in the current study. The sample characteristics of each participant group are presented below.

**4.1.1. 1 Parent Participants.** Mothers (females) represented the majority of the parent sample ( $n = 104$ ; 87%). Three fathers (males;  $n = 3$ ; 2.5%) participated in the study, and 12 (10%) of the parent participants did not report their sex on the study questionnaires. Table 4.1 provides parents' and their respective child's demographic information.

As 119 parents participated in the study, information regarding their reported parenting stress, family's demographic information as well as parent reports of the child's anxious symptoms was obtained for 119 of the 174 child participants, making up the parent-child dyads. There were 71 male (60%) and 48 (40%) female children in the parent-child sample. The age distribution of child participants in this parent-child dyad is presented in Table 4.2.

Table 4.1. *Demographic information of participating parent-child dyads*

Demographic factor	<i>n</i>	<i>Percentage (%)</i>
Child's Ethnicity	<i>North American: 66</i>	56
	<i>South Asian: 5</i>	4
	<i>European: 14</i>	12
	<i>Middle Eastern: 2</i>	2
	<i>East or Southeastern Asian: 25</i>	21
	<i>Latin, Central or South</i>	

	<i>American: 1</i>	1
	<i>Mixed (e.g., Asian-North American): 5</i>	4
Child Participants Born in Canada	105	88
Parent Participants Born in Canada	64	54
Child's First Language is English	101	85
Reporting Parent's Age Group	31-35: 1 36-40: 20 41-45: 57 46-50: 35 51-55: 6	1 17 48 29 5
Parent's Spouse's Age Group	36-40: 14 41-45: 56 46-50: 35 51-55: 8 56-60: 1	12 47 29 7 1
	<i>Not reported: 5</i>	4
Reporting Parent's Education Level	<i>Some High School: 1</i> <i>High School Completed: 2</i> <i>Some University/College: 2</i> <i>University/College Completed: 55</i> <i>Some Graduate/Professional Schooling: 14</i> <i>Graduate/Professional School Completed: 44</i>	1 2 2 45 12 37
Parent's Spouse's Education Level	<i>Some High School: 1</i> <i>High School Completed: 4</i> <i>Some University/College: 13</i> <i>University/College Completed: 45</i> <i>Some Graduate/Professional Schooling: 7</i> <i>Graduate/Professional School Completed: 43</i>	1 3 11 38 6 36
	<i>Not Reported: 6</i>	5
Parent and Child Speaking Additional Languages	67	56

**4.1.1.2 Child Participants.** Males represented the majority of the child participant sample ( $n = 103$ ; 59%) in comparison to females ( $n = 71$ ; 41%). Additional sample characteristics of child participants are available in Table 4.2.

Table 4.2. *Age Distribution of Child Participants. Participants from the parent-child dyad represent those child participants whose parents have returned the study questionnaires.*

	Overall Child Sample	Parent-Child Dyad
	<i>Age group: n (%)</i>	<i>Age group: n (%)</i>
Child's Age	Age 8: 16 (9)	Age 8: 15 (13)
	Age 9: 39 (22)	Age 9: 22 (18)
	Age 10: 48 (27)	Age 10: 38 (32)
	Age 11: 49 (29)	Age 11: 28 (24)
	Age 12: 22 (13)	Age 12: 16 (13)

**4.1.2 Data Inspection and Descriptive Analysis.** Table 4.3 provides descriptive information of the study variables. Initial analysis of the study data revealed some missing values. Specifically, two parent participants did not complete the PRI-4. In addition, total and sub-scale (i.e., Positive and Negative Attribution scores) scores for *the CASQ* were not computed for twelve of the child participants due to either them not completing the measure or them choosing multiple responses for single items. Furthermore, six of the child participants did not complete the *Perception of Parents' Stress Questionnaire*. Participants were omitted from the primary analyses only if they were missing the information required for specific analysis.

**4.1.2.1 Parent-Reported Variables.** Parent-reported MASC-2 total T-scores were computed for each participant. A total of 119 parent participants completed the MASC-2, with total T-scores ranging from 32 (*Low Anxiety*) to 82 (*Very Elevated Anxiety*;  $M = 55.54$ ;  $SD =$

11.02), and 117 parent participants completed the PRI-4 with total T-scores ranging from 32 to 89 ( $M = 50.82$ ;  $SD = 10.75$ ) for the child domain, 27 to 102 ( $M = 47.09$ ;  $SD = 10.66$ ) for the parent domain, 27 to 94 ( $M = 48.48$ ;  $SD = 10.48$ ) for total stress and 39 to 74 ( $M = 46.91$ ;  $SD = 6.85$ ) for life stress.

Inspection of histograms and boxplots for the MASC-2 (Parent-Report) total T-scores and PRI-4 index total T-scores (i.e., Child Domain, Parent Domain, Total Stress and Life Stress) indicated no extreme outliers ( $z = \pm 3.29$ ; Tabachnick & Fidell, 2007) except for the PRI-4 parent domain and total stress. Parent domain parenting stress T-score and total parenting stress T-score distributions required further considerations. Specifically, parent domain parenting stress and total parenting stress T-scores were found to have extremely positive ( $>2$ ) kurtosis (5.52, 2.26, respectively). Closer examination of the data revealed one extreme outlier for the parent domain parenting score T-score distribution and one extreme outlier for the total parenting stress T-score distribution score ( $z > \pm 3.29$ ; Tabachnick & Fidell, 2007). These parent participants reported high levels of interpersonal and overall stress compared to other participating parents. As the nature of this study was to examine the relationship between individual aspects of parenting stress to child's anxiety, these outliers indicated greater level of stress and were therefore retained for analysis. However, given the potential of extreme outliers to affect the analyses, extreme outliers for parent domain and total parenting stress T-scores were winsorised to less extreme values with  $z = \pm 3.29$  (Tabachnick & Fidell, 2007). Following the transformations, skewness and kurtosis values were considerably reduced (see Table 4.4). Therefore, all analysis involving parent domain parenting stress and total parenting stress were completed with the modified scores. Overall, skewness and kurtosis values for the remaining parent-reported variables are within the acceptable range (i.e.,  $\pm 2$ ; Tabachnick & Fidell, 2007)

and the distribution appears to be reasonably normally distributed as evidenced by their examination of the histograms and normal probability plots.

**4.1.2.2 Child-Reported Variables.** Self-reported MASC total T-scores were computed for each participant. A total of 173 child participants completed the MASC-2, with total T-scores ranging from 29 (*Low Anxiety*) to 86 (*Very Elevated Anxiety*;  $M = 54.19$ ;  $SD = 11.51$ ).

Examination of histogram and boxplots for the self-reported MASC-2 total T-scores revealed no extreme outliers ( $z = \pm 3.29$ ; Tabachnick & Fidell, 2007). The skewness and kurtosis values for the distribution fell within the excellent range ( $\pm 1$ ; Tabachnick & Fidell, 2007), and the distribution also appears to be normal as evidenced by its examination of the histogram and normal probability plots.

Total attributional style scores, accompanied by independent positive and negative attribution style scores were also calculated for each participant were calculated from the CASQ. A total of 162 participants completed the CASQ, with total scores ranging from -13 to 18 ( $M = 3.46$ ;  $SD = 5.27$ ), 4 to 20 ( $M = 12.27$ ;  $SD = 3.18$ ) and -9 to 18 ( $M = 8.86$ ;  $SD = 3.69$ ) for total attributional style, positive attributional style and negative attributional style scores, respectively. Examination of histograms and boxplots for each attributional style scores indicated no extreme outliers ( $z = \pm 3.29$ ; Tabachnick & Fidell, 2007). The skewness and kurtosis values for each of the attribution style score distribution fell within the acceptable range (i.e.,  $\pm 2$ ; Tabachnick & Fidell, 2007), and inspection of histogram and normal probability plots indicated that the distributions were reasonably normal.

Raw total scores of children's perception of their parents' stress were calculated for each participant. A total of 164 participants completed the questionnaire measuring this construct, with total raw scores ranging from -72 to 45 ( $M = -18.81$ ;  $SD = 19.26$ ). When histogram and

boxplots of the total scores of the variable were inspected, no extreme outliers were revealed ( $z = \pm 3.29$ ; Tabachnick & Fidell, 2007), and the skewness and kurtosis values of the score distribution fell within the excellent range (i.e.,  $\pm 1$ ; Tabachnick & Fidell, 2007). Further examination of the scores' normal probability plots also indicated that the scores were normally distributed.

Table 4.3. *Descriptive information of the study variables*

Scale	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
MASC-2 (Parent- Report)	119	32	82	55.54	11.02	0.30	-0.54
MASC-2 (Child/Self Report)	173	29	86	54.19	11.51	0.19	-0.36
PRI-4- Child domain	117	32	89	50.82	10.78	1.09	1.50
PRI-4- Parent domain	117	27	102	47.09	10.66	1.40	5.52
PRI-4 Total Stress	117	27	94	48.48	10.48	1.06	2.62
PRI-4 Life Stress	117	39	74	46.91	6.48	1.34	1.90
Total Attribution Style Score	162	-13	18	3.40	5.22	-0.54	1.12
Positive Attribution Style Score	162	4	20	12.20	3.23	-0.27	-0.13
Negative Attribution Style Score	162	2	18	8.90	3.31	0.47	-0.17
Children's Perception of Parents' Stress	164	-72	45	-18.81	19.26	0.05	0.55

Table 4.4. *Descriptive data for the parent domain of parenting stress and total parenting stress scores with winsorisation.*

Scale	<i>n</i>	Minimum	Maximum	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
PRI-4- Parent domain	117	32	89	46.93	9.96	0.74	1.53
PRI-4 Total Stress	117	27	84	48.38	10.12	0.76	1.90

Multivariate normality was examined for all variables of the present study using Mahalanobis distance. One extreme multivariate outlier was found, and given the extreme value, the participant's scores were excluded for multivariate analysis. Scatter plots were created to assess the linearity between continuous variables. All continuous variables appear to be reasonably linearly related.

**4.1.3 Reliability Analysis.** Coefficient alpha was calculated for each scale used in this study to estimate their internal consistency reliability with this study's sample. Table 4.5 illustrates the coefficient alphas for each measure.

Table 4.5. *Coefficient alphas for each scale.*

Measure	Scale	Coefficient Alpha
MASC-2	Self-Report (Total)	0.93
MASC-2	Parent-Report (Total)	0.91
PSI-4	Child-Domain	0.93
PSI-4	Parent-Domain	0.89
CASQ	<i>Positive Events</i>	
	Internal-External	0.45
	Unstable-Stable	0.27
	Specific-Global	0.10

CASQ	Negative Events	
	Internal-External	0.11
	Unstable-Stable	0.26
CPPS	Specific-Global	0.09
	(all items)	0.92

## 4.2 Primary Analyses

*Is there a significant relationship between parent-reports of their children's anxious symptoms and self-reports of children's anxious symptoms?*

Pearson's product correlation computed the direction and strength of the relationship between parent- and self-reports of the child's anxious symptoms. A weak, significant correlation was obtained between these two variables ( $r = 0.26$ ,  $p = 0.007$ ).

*Is there a significant relationship between parent-reported parenting stress and children's anxious symptom?*

Pearson product moment correlations were computed to determine the strength and direction of the relationship between child-caregiving related stress (child domain), personal and interpersonal stress (parent domain), overall stress (total parenting stress), life stress and parent-reported child's anxious symptoms respectively across the parent sample. In congruence with the hypothesis, significant, positive but weak relationships were found between child- and parent-related parenting stress and parent-reported child's anxious symptoms as well as between overall parenting stress and parent-reported child's anxious symptoms. No significant relationship was demonstrated between parents' life stress and parent-reported child's anxious symptoms (see Table 4.6). In addition, no significant correlation was observed between any of the parenting stress variables (i.e., child-domain, parent-domain, total stress, life stress) and child-reported

anxious symptoms. However, when the correlations were examined for male and female child participants separately, significant, positive, modest correlations were seen between females' reports of their anxious symptoms and their parents' stress across three domains: parent domain; child domain; total parenting stress domain.

Table 4.6. *Pearson product moment correlation for parenting stress variables versus children's anxious symptoms and their perception of their parents' stress. Values indicated with \*\* are significant at  $p < 0.05$*

	Child Domain Parenting Stress	Parent Domain Parenting Stress	Total Parenting Stress	Life Stress
MASC-2 Total Anxiety (Parent- Report)	0.37**	0.30**	0.36**	0.05
MASC-2 Total Anxiety (Self- Report)	0.19	0.18	0.05	0.05
Children's Perception of their Parents' Stress	0.41**	0.46**	0.39**	0.23**

*Is there a significant relationship between children's attribution style and their anxious symptoms?*

Pearson's product moment correlation was computed to determine the strength and direction of the relationship between each of the attributional style (i.e., total, positive, negative) and child's anxious symptoms. The hypotheses for the results of this question were not confirmed as no significant relationships was found between any of the attributional style and child's anxious symptoms. However, considering the sex differences seen between attributional style and internalising symptoms seen in the prior research (e.g., Gladstone, Kaslow, Seeley, & Lewinsohn, 1997; van Beck & Debus, 2008; Gluck, Lynn, Dritschel & Brown, 2014), the relationship between the attributional styles and child's anxious symptoms were examined for

males and females, separately (see Table 4.7). According to the correlational results, significant relationships were only obtained for females, but not males. Specifically, a medium negative correlation was found between children's anxious symptoms and their total attributional style ( $r = -0.54, p < 0.01$ ) and their positive attributional style ( $r = -0.39, p < 0.001$ ). In addition, medium positive correlation was obtained between children's negative attribution style and their anxious symptoms ( $r = 0.46, p < 0.001$ ). These results indicate that female children with low, positive attributional style reported greater levels of anxious symptoms, and the reverse pattern was observed for negative attributional style and their levels of anxious symptoms.

Table 4.7. *Pearson product moment correlation between children's attributional style variables and their anxious symptoms. Values indicated with \*\* are significant at  $p < 0.05$*

	Total Attribution Style	Positive Attribution Style	Negative Attribution Style
MASC-2 Total Anxiety (Self-Report)	Females: -0.54**	Females: -0.39**	Females: 0.46**
	Males: -0.04	Males: -0.06	Males: 0.006
MASC-2 Total Anxiety (Parent-Report)	Females: -0.23	Females: -0.18	Females: 0.18
	Males: -0.12	Males: -0.19	Males: 0.02

*Is there a significant relationship between child's perception of parenting stress and their anxious symptoms?*

Similar to previous analyses, Pearson's moment correlation was also computed to determine the strength and direction of the relationship between child-reported anxious symptoms and their perceptions of their parents' stress. Consistent with the hypothesis, significant, a medium positive correlation was found between these two variables ( $r = 0.40, p < 0.05$ ). A weaker but still significant positive correlation was also obtained between parent-

reported child's anxious symptoms and children's perception of their parent's stress ( $r = 0.20, p < 0.05$ ).

*Is there a significant relationship between child and parent perception of parental stress?*

Pearson-product moment correlation determined the direction and strength of the relationship between children's perception of their parents' stress and parent-reported parenting stress for all measured domains. Results indicated weak to moderate, positive but significant relationships among the parents stress domains and children's perception of their parents' stress (see Table 4.6).

*Does parenting stress predict children's anxious symptoms?*

Multiple linear regression analysis was computed to examine the prediction of parent-reported children's anxious symptoms from parenting stress. More specifically, parenting stress-child domain and parent domain T-scores were entered as independent variables and parent-reported MASC-2 total t-scores as the dependent variable. The model was significant at  $F(2, 114) = 9.79, p < 0.0001$ . However, the overall model explains only 13% of the variance ( $R^2 = 0.13$ ) in the parent-reported total MASC-T scores. Further analyses with T-tests revealed that the children's anxious symptoms were only dependent on the parenting stress induced from specific caregiving demands (i.e., child domain;  $t = 2.80, p = 0.006$ ), but not on parenting stress based on parent domain ( $t = 1.08, p = 0.28$ ).

*Does children's attribution style predict their anxious symptoms?*

Given that only female children's attribution style significantly correlated with their anxious symptoms, the prediction between these two variables was examined only in female participants. For this set of regression analysis, total scores for positive and negative attribution scores were entered as independent variables, and the child-reported MASC-2 total T-scores

were entered as the dependent variable. The overall model was significant,  $F(2, 62) = 13.37, p < 0.001$ , explaining 28% of the variance ( $R^2 = 0.28$ ) in MASC-2 total T-scores. Both positive ( $\beta = -1.29, p = 0.06$ ) and negative attributions ( $\beta = 1.75, p = 0.01$ ) contributed to the model. Positive attribution style had significant negative regression weights indicating that female child participants with higher positive attribution style scores were expected to report lower levels of anxious symptoms after controlling for other variables in the model.

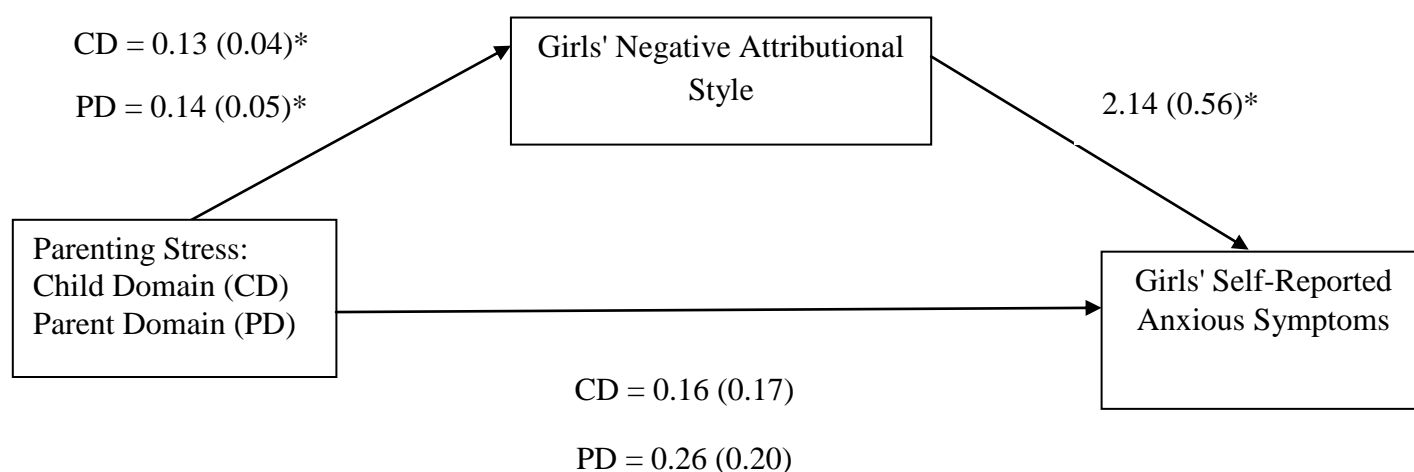
*What is the inter-relationship between child's anxious symptoms, attribution style and children and parent perceptions of parenting stress?*

Pearson-product moment correlation and multiple regression were calculated to examine the inter-relationship between female child participants' attribution style and their parent-reported parenting stress with respect to their own reports of their anxious symptoms. To recall, children's attributional style was related to their anxious symptoms in female child participants only, and thus, these inter-relationships analyses were only explored across the female-child sample. These analyses only included information of those female child participants whose parents successfully completed the PSI-4 and the MASC-2. . In total, there were 39 female child-parent dyads. Initially, correlations between the variables of interest: child reported- anxious symptoms, females' positive and negative attributional style scores, and parenting-stress child and parent domain T-scores were obtained. As mediation analysis requires respective variables to significantly correlate with one another, only correlations between variables reaching statistical significance were considered for analyses. In the female child-parent dyads, female children's negative attributional styles ( $r = 0.53$ ) as well as their parents' stress, pertaining to both child ( $r = 0.39$ ) and parents domains ( $r = 0.40$ ) were found to be significantly correlated with their reports of their own anxious symptoms. In the first regression model, female children's negative

attributional scores and parenting stress-child domain total T-scores were entered as the independent variables and child-reported MASC-2 total T-scores as the dependent variable. The model was significant  $F(2, 36) = 7.62, p = 0.002$ , explaining about 30% of the variance in the dependent variable. Further examinations of T-tests indicated that the variance in female-report MASC-2 total T-scores were only directly dependent on their negative attributional style score. This model was further examined with a mediational analysis to see if negative attributional style scores possibly mediated the relationship between parenting stress-child domain T-scores and female child reported anxious symptoms. According to the analysis, parenting stress-child domain T-scores independently predicted female children's attributional style scores,  $F(1, 37) = 13.01, p = 0.001, R^2 = 0.26$ , suggesting that female children's negative attributional style scores mediated the prediction between parenting stress child domain total T-scores and female child reported-MASC-2 total T-scores (see Figure 4.1). A Sobel test indicated that negative attributional style was a significant mediator,  $t = 48, p = 0.01$

A similar set of multiple linear regressions was calculated to investigate the inter-relationships between parenting stress-parent domain T-scores and female children's negative attributional style scores with respect to female-child reported anxious symptoms total T-scores. Similar regression procedure as above was followed to examine the predictions, but parenting stress-parent domain t-scores instead of parenting stress-child domain T-scores were utilized instead as one of the dependent variables. The model was significant,  $F(1, 37) = 8.20, p = 0.001$ , but explained only about 15% ( $R^2 = 0.15$ ) of the variance in the female-reported T-scores of MASC-2. Further inspections of T-tests revealed that only negative attributional style scores had a significant impact on female-reports MASC-2 t-scores,  $t = 3.55, p = 0.001$ . The model was followed up with a mediational analysis to see whether parenting stress-parent

domain T-scores had an indirect effect on females' reports of their anxious symptoms through their negative attributional style scores. According to the analyses, parenting stress-parent domain T-scores independently predicted female children's negative attributional style scores ( $F(1, 37) = 9.58, p = 0.004, R^2 = 0.21$ ) suggesting that negative attributional style scores also mediated the prediction between parenting stress-parent domain total T-scores and self-reported MASC-2 total t-scores in female child participants. A Sobel test indicated that negative attributional style scores for female child participants was a significant mediator,  $t = 2.29, p = 0.02$ .



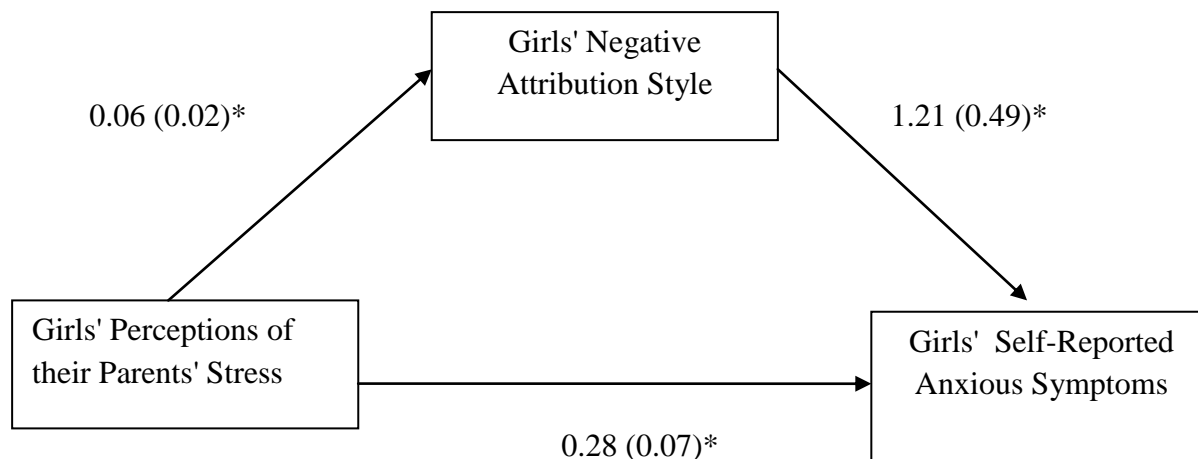
*Figure 4.1.* Mediation model showing the prediction of girls' anxious symptoms from their parents' stress, child and parent domains. While negative attributional style independently predicted girls' anxious symptoms, parenting stress did not have a significant impact on their anxious symptoms once the effect of negative attributional on their anxious symptoms was controlled for. Negative attributional style thus mediated the effect of parents' stress on their overall anxious symptoms. These values, unstandardized Beta coefficients (standard error) are significant at  $p < .05$ .

The third set of regression analysis examined the effect of parents' and children's perceptions of their parenting stress on children's anxious symptoms. The initial model was computed using parent-reports of their children's anxious symptoms. The model was significant,

$F(2, 93) = 6.20, p = 0.003$ , but explained only about 12% ( $R^2 = 0.12$ ) of the variance in parent-reported MASC-2 total T-scores. While parenting stress had significant regression weight on the model ( $\beta = 0.32, SE = 0.11, p = 0.006$ ), children's perception of their parents' stress had no significant contribution to the model ( $\beta = 0.05, SE = 0.06, p = 0.39$ ). Furthermore, the same model was not significant when it was conducted using child-reports of their anxious symptoms as the dependent variable ( $F(2, 93) = 0.17, p = 0.85$ ).

The final analysis involved examining the influence of children's negative attributional style and their perception of their parents' stress on their anxious symptoms. This regression was computed across the female child sample due to the finding that negative attributional style predicted anxious symptoms only in female participants. The first model was computed with females' reports of their anxious symptoms. More specifically, total scores for females' perception of their parents' stress as well as their total negative attribution scores were entered as the independent variables, while their reports of MASC-2 total T-scores were inserted as the dependent variable. The model was significant,  $F(2, 61) = 18.60, p < 0.0001$ , and explained 38% ( $R^2 = 0.38$ ) of the variance in the MASC-2 total T-scores. Both females' negative attributional style ( $\beta = 1.21, SE = 0.49, p = 0.017$ ) and perceptions of their parents' stress ( $\beta = 0.28, SE = 0.07, p < 0.001$ ) had significant effects on the model. This model was followed-up with mediation regression analysis in which the girls' perceptions of their parents' stress was entered as the independent variable, their negative attribution style was entered as the mediating variable, and their total anxious symptoms were entered as the dependent variable. These analyses indicated that their negative attributional style partially mediated the prediction of their anxious symptoms from their perception of their parents' stress. To elaborate, females' perception of their parents' stress was found to be predictive of their negative attribution style ( $\beta = 0.06, SE = 0.02, p =$

0.001) as well as their total anxious symptoms as discussed above (see Figure 4.2). Furthermore, A Sobel test confirmed that girls' negative attribution style was a significant partial mediator ( $t = 2.70, p = 0.007$ ).



*Figure 4.2.* Mediation model showing the prediction of girls' anxious symptoms from their perception of their parents' stress. While girls' perception of parents' stress and negative attribution style predict their overall anxious symptoms independently, negative attribution style also partially mediates the effect of children's perception of their parents' stress on their overall anxious symptoms. These values, unstandardized Beta coefficients (standard error) are significant at  $p < .05$ .

*Are there sex, age, and ethnic differences with respect to parental stress, child's attribution style and child's anxious symptoms?*

Sex and age differences in parent-reported parenting stress, child's maladaptive attributional style and child anxious symptoms (parent-reported) were examined using a three-way between-groups MANOVA. There was a statistically significant difference between age groups (ages 8-12),  $F(12, 222) = 3.76, p < 0.001$ . Further analysis with follow-up ANOVAs using a Bonferroni adjusted alpha level of 0.017 revealed that only overall mean levels of parenting stress and children's maladaptive attributional style reached statistical significance,  $F(4, 86) = 6.69, p < 0.001$ ;  $F(4, 86) = 4.35, p = 0.003$ , respectively. Inspection of the means indicated that children age 10 and 11 reported the most elevated levels of maladaptive

attributional style, and parents of children of age 10 reported the greatest level of parenting stress (see Table 4.8). No sex differences were found for parenting stress, child's maladaptive attributional style and child's anxious symptoms. Descriptive data by sex and age are presented in Table 4.8. One-way between -groups ANOVA was also used to examine sex and age differences in child-reports of their anxious symptoms. The results indicated no sex,  $F = (1, 86) = 0.23, p = 0.63$  or age,  $F = (4, 86) = 0.39, p = 0.82$  differences.

Initial frequency analysis of child participant's ethnicity revealed that participants of North American (i.e., Caucasians) and Southeast or East Asian decent represented the majority of the child sample. As such, ethnicity differences in parenting stress, children's maladaptive attributional style and child's anxious symptoms were examined between these two groups only using three-way between-groups MANOVA. The results indicated no significant ethnic differences between these two groups in the noted variables,  $F (3, 72) = 2.12, p = 0.10$ . Similarly, no differences between these two ethnic groups were also found in child-reported total anxious symptoms,  $F (1, 74) = 0.15, p = 0.70$ .

Table 4.8. *Parenting stress, children's attribution style and parent-reported child's anxious symptoms descriptive statistics by demographic factors.*

		Total Parenting Stress		Children's Attribution Style		Parent-Reported Child's Anxious Symptoms		Self-Reported Child's Anxious Symptoms	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total Sample		48.38	10.12	3.40	5.22	55.54	11.0	55.54	11.0
Age									
	8	50.14	6.93	7.36	3.61	55.21	11.81	53.86	11.45
	9	45.25	6.63	6.38	4.87	54.44	10.03	54.75	7.99
	10	53.14	11.09	2.07	4.68	54.31	11.59	54.72	9.87
	11	50.40	10.26	2.00	6.03	58.08	11.96	56.25	11.41
	12	37.50	4.62	4.25	2.28	54.75	6.48	49.58	12.93
Sex									
	Females	47.28	9.60	3.36	4.50	54.62	9.83	54.36	11.45
	Males	49.70	10.54	4.12	5.62	56.11	11.56	54.34	10.14
Ethnicity									
	North American	46.98	7.69	4.58	4.33	53.83	10.19	53.00	10.34
	East/Southeast Asian	52.00	12.77	2.74	6.56	57.98	11.72	59.00	10.73

*Are there any differences with respect to parenting stress, child's attributional style and child's anxious symptoms between schools and their respective educational curriculum (i.e., gifted vs. non gifted program)?*

A three-way between groups MANOVA was computed to investigate any differences with respect to parent-reported variables (i.e., parenting stress-child domain, parenting stress-parent domain, parent-reported child's anxious symptoms) and child-reported variables (i.e., child's attributional style, child-reported anxious symptoms) between participants from the two schools engaged in the present study. The results illustrated that the overall three-way between groups MANOVA model for parent-reported variables was significant,  $F(3, 98) = 3.38, p = 0.02$ . When the variables were inspected independently via follow-up ANOVAs using a

Benferroni adjusted alpha level of 0.017 indicated that the means of both parenting stress variables (child and parent domains) were significantly different between schools,  $F(1, 100) = 8.45, p = 0.002$  (parenting stress-child domain) and  $F(1, 100) = 7.64, p = 0.007$ . More specifically, on average, parents from school 1 (gifted program) reported higher levels of parenting stress pertaining to both child and parent domain in comparison to parents from school 2 (see Table 4.9). Notably, no significant difference in the means of parent-reports of the child's anxious symptoms was found between schools.

A three-way between groups MANOVA for the child reported variables resulted in a non-significant model,  $F(3, 157) = 1.21, p = 0.31$ . That is, the overall means for child-reports of their anxious symptoms as well as their positive and negative attributional style scores were not significant between schools (see Table 4.9).

Table 4.9. *Descriptive statistics for parent-reported and child-reported variables for each school. Participants from School 1 were identified gifted students.*

	Parenting Stress- Child Domain		Parenting Stress- Parent Domain		Parent-Reported Child's Anxious Symptoms	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total Sample	51.42	11.24	47.68	10.66	55.58	10.76
School 1	54.03	11.02	49.95	10.23	56.58	11.85
School 2	47.69	10.59	44.45	9.35	54.14	8.93
	Children's Attributional Style for Positive Events/Outcomes		Children's Attributional Style for Negative Events/Outcomes		Child-Reported Anxious symptoms	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Total Sample	12.20	3.23	8.90	3.31	54.19	11.51
School 1	11.80	3.21	9.16	3.33	55.29	11.54
School 2	12.9	3.22	8.59	3.30	53.74	11.68

## Chapter Five: Discussion

This chapter discusses the significant findings from the current study with respect to the results obtained from the preliminary and primary analyses. The chapter further assesses the results of the study in terms of their theoretical, empirical, and practical implications. Finally, a discussion of the study's strengths and limitations are presented, as well as conclusions and directions for future research.

### **5.1 Overview of Significant Results**

The current study examined the relationship among parents' perceptions of parenting stress and their children's attributional style with respect to children's anxious symptoms. Additionally, the extended the existing literature by including measurement of children's own perceptions of their parents' stress and examining sex, age and ethnicity differences with respect to parenting stress, children's attributional style and their anxious symptoms in a sample of Canadian children. The primary objective of this study was to determine whether parenting stress and children's attributional style operate on anxiety in tandem or independently, and if there is a relationship between these two variables and anxiety, then whether the relationship is moderated by factors such as child's sex, age, ethnicity or his or her own perceptions of their parents' stress. To fulfill this objective, preliminary analyses were conducted to examine the sample characteristics as well as descriptive statistics of the study variables. The most significant results from the preliminary and primary analyses are subsequently discussed.

### **5.2 Discussion of Results Relative to Preliminary Analyses**

As a group, males represented the majority of the child sample (59%), and 56% of child participants were in the 10-11 age range. From the pool of parents who had initially consented to participate in the study, 63% of them responded and returned the research questionnaires. Thus,

all analyses requiring parental variables (e.g., parent-reported child's anxious symptoms, parent-reported parenting stress) as well as child's participants' demographic variables concurrently (e.g., relationship between parenting stress and child's attributional style on child's anxious symptoms) were conducted using that pool of parent-child dyads only. As a result, these analyses did not provide a comprehensive parental or demographic representation of the participating child sample. In addition, it is also important to note that the parent pool was primarily consisted of mothers. As such, responses obtained from the examined parental variables largely just represent mothers' perception of their child's anxious symptoms and maternal stress. Although prior research suggests that fathers' and mothers' reports of their child's anxious symptoms are highly concordant (e.g., Benjamin, Puleo, & Kendall, 2011; Villabo, Gere, Torgersen, March, & Kendall, 2012), mothers and fathers may experience different kinds of caregiving demands and personal stressors (Rodriguez, 2011). For example, Krauss (1993) found that mothers of children with developmental disabilities reported greater parenting stress with respect to personal stressors such as lack of social support and parental competence whereas fathers had more difficulty with their child's demandingness and mood. Therefore, future research efforts need to include both fathers and mothers to examine whether maternal versus paternal parenting stress relates to child's anxiety differently.

Descriptive analyses of the parent-child dyads revealed that the majority of child participants were of North American or East/Southeast Asian (e.g., Japan, South Korea, Vietnam) decent, making up 56% and 21% of the sample, respectively. The ethnic distribution of the parent-child dyads suggests that at least 50% of the parent-child dyads were composed of Caucasian parents and children, and this is consistent with prior research examining child's anxiety and related risk factors (Cannon & Weems, 2010; ;Pahl et al., 2012; Rodriguez, 2011).

However, unlike previous studies (Hudson, 1995; Pahl et al., 2012; Rodriguez, 2011), the present study also provides an opportunity to examine the patterns of child anxiety and related risk factors, namely, child's attributional style and parents' perceptions of parenting stress on a non-Caucasian minority group (i.e., East-South East Asian Canadian parents and their children). In comparison to the rest of the parent-child dyads, child participants of East/Southeast Asian decent reported higher levels of anxious symptoms as well as a maladaptive attributional style, but rated their parents to be experiencing less levels of parental stress. Parents of East/Southeast Asian decent reported their child to be experiencing slightly higher levels of anxious symptoms and their reported overall parenting stress was also slightly elevated. Moreover, the present study also collected additional demographic information from participating parents (e.g., parents' age group, parents' completed education level). However, results indicated that there wasn't much variation with respect to demographic variables among parents. For example, almost 50% of the participating parents were in the 41-45 age group and about 82% of parents had either college or university-level of education (undergraduate and graduate training combined). As such, no independent analysis with respect to any of these remaining demographic factors and parenting stress, children's attributional style and children's anxious symptoms were conducted.

As a group, self-and parent- reports of the child's anxious symptoms ranged between *low* to *very elevated* levels (as indicated by their MASC-2 total T-scores), though the means scores fell in the *average* range and were comparable to means reported by previous researchers using the earlier version of the MASC-2 (Kendall et al., 2010; Miller et al., 2014; Olason, Sighvatsson & Smar, 2004). Further analysis of MASC-2 total T-scores for parent and self reports revealed that they had excellent internal consistency, indicating that the construct of "child's anxious symptoms" in the present study was measured reliably. In consideration of these factors together,

the current sample's reported level of child's anxious symptoms for both self-and parent reports may be compared to other studies that have used this measure.

In terms of parent reports of their stress (i.e., parenting stress), their total stress scores fell between *normal* to *high* range across the three domains: parent domain; child domain; total stress domain. Parenting stress with respect to life stress (e.g., loss of employment, divorce) was less variant and fell in the *normal* range only, suggesting that the present parent sample did not experience elevated levels of stress pertaining to financial troubles, employment, divorce/separation, etc. The internal consistency for the total T-scores for parenting stress across child and parent domains fell in the good to excellent range, suggesting that these constructs were also measured reliably in the present study. On average, mean scores of the child domain of parenting stress were comparable to means reported by Rodriguez (2011), who was one of the few researchers to report the means of independent domains of parenting stress, separately. In comparison to Rodriguez (2011), mean scores of parent domain of parenting stress and total parenting stress were lower, suggesting that in comparison, the present Canadian parent sample reported less stress with respect to interpersonal, spousal relationships, and physical and mental health.

Moreover, scores of children's attributional style ranged between *low* to *high* levels for both positive and negative attributions, however the scales had low reliability. That being said, it is important to consider a few factors when analyzing the CASQ's internal consistency. Firstly, Cronbach's alpha which is a commonly used statistical test to analyse scales' internal consistency, was essentially developed for use on Likert scales (Cronbach, 1951). A Likert scale assumes that responses are ranged on an equidistant range (e.g., *Strongly Disagree* to *Strong Agree*). The CASQ is not a true Likert scale; it's a forced-choice questionnaire which requires

respondents to choose either option A or B for a given scenario; for example, options providing an "external" attribution for positive life outcomes were all coded 1 and options suggesting an "internal" attribution for positive life outcomes were all coded 2. Thus, these responses used to obtain correlations to calculate internal consistency did not lie on a true continuum, but in fact, for some of the items, they lied in different dimensions (e.g., "Why did you fail a test? Option A: I am stupid; Option B: teachers make hard tests"), and thus, Cronbach's alpha might not be true representative of the scale's internal consistency. Nonetheless, the responses from the CASQ should be interpreted with caution. It is important to note that the means for the CASQ scales were consistent with mean scores reported by previous researchers on same age participants (e.g., Rodriguez, 2011) and thus, can be empirically compared.

Finally, children's perceptions of their parents' stress were measured through a novel questionnaire that was particularly developed for this study (i.e., CPPS). The scale demonstrated excellent internal reliability, suggesting that child participants were consistent with their responses on the scale's items. On average, total raw scores of children's perceptions of their parents' stress fell in the *low* range, suggesting child participants typically perceived their parents to be experiencing low stress relating to caregiving demands as well as personal matters. It is important to note that the CPPS was not a standardized measure. Psychometric properties such as CPPS's internal consistency, test-retest reliability, divergent and convergent validity across various samples need to be examined through future empirical investigations. Therefore, results obtained from the CPPS are only tentative and should be interpreted with caution. Future research is warranted to further examine the reliability and validity of the CPPS to verify their usefulness for empirical and clinical purposes.

### 5.3 Discussion of Results Relative to Primary Analyses

*Is there a significant relationship between parent-reports of their child's anxious symptoms and self-reports of children's anxious symptoms?*

Parent-reports of their child's anxious symptoms were somewhat concordant to self-report of their child's anxious symptoms. To elaborate, this relationship was found to be positive and statistically significant; however the correlation was weak. This finding is contrary to previous research suggesting that parents and youth often disagree about the psychological symptoms that youth are experiencing (e.g., DiBartolo, Albano, Barlow 1998; Frick, Silverhorn & Evans, 1994). For example, in a recent study conducted by Miller and colleagues (2014), correlations between parent and child ratings of anxiety were poor over three time points. In addition, Nauta and colleagues (2004) revealed that concordance rates between child and parent reports of child anxiety were lower in a community sample in comparison to a clinical sample. Such inconsistencies lead to controversies over whose report (child vs. parent) is more accurate in assessing for child anxiety. Some researchers assert that children are better at accurately reporting their internal distress specifically for internalizing disorders such as anxiety. In this regard, the child may not openly express his/her worries or discuss his/her irrational fears with family members, and thus parents may have difficulty identifying a child's anxiety if the child does not disclose his or her feelings or if the child makes efforts to hide anxious feelings (Miller et al., 2014; Edelbrock, Costello, Duncan, Conover & Kala, 1985). On the other side of the debate, other researchers have found that parents may report on their child's anxiety more reliably (DiBartolo et al., 1998; Schniering, Hudson & Rapee, 2000). For example, it is postulated that parents are likely to have a better understanding of the language and items queried on anxiety assessment questionnaires. In addition, prior research suggests that children

may have difficulty thinking retrospectively and answering questions demanding complex metacognition (e.g., questions about internal thoughts, feeling states or reporting the frequency of certain symptoms; Schniering et al., 2000; Perez, Ascaso, Massons & de la Osa Chaparro, 1998) which may lead to under or over reporting of their internalizing symptoms. However, relatively weaker concordance found between child and parent reports of the child's anxious symptoms in the present study supports the importance of assessing both parents' and the child's account of the child's potential anxious symptoms and incorporating both accounts when assessing child's anxiety in clinical cases.

*Is there a significant relationship between parent-reported parenting stress and children's anxious symptoms?*

The literature categorizes parenting stress into three primary domains: child, parent and life stress domains. The present study examined the relationship between each of these parenting stress domains to parent-and self-reports of the child's anxious symptoms. According to the study findings, child-, parent-domain and overall parenting stress were significantly related to parent-reports of the child's anxious symptoms. However, life stressors such as loss of employment and financial troubles did not correlate with either parent or self-reports of the child's anxious symptoms. These findings support the study's hypothesis as well as the prior research. In this regard, there was a significant relationship between overall parenting stress and parent-reports of the child's anxious symptoms, which indicated that parent participants, who experienced increased caregiving stress (e.g., stress induced from the child's demandingness, mood, and adaptability) as well as stress associated with interpersonal relationships, were more likely to perceive their child to be increasingly anxious. Hence, there appears to be a need for child

anxiety interventions and preventions to address parenting stress with respect to their caregiving and personal matters and overall well-being.

In this study, there was a sex difference in the relationship between children reports of their anxious symptoms and their parents' stress. In this regard, parenting stress related to caregiving demands and personal matters were only associated with girls' reports of their anxious symptoms. Prior literature has not reported this sex difference when investigating the relationship between parenting stress and child's anxiety (Pahl et al., 2012; Rodriguez, 2011). There may be a few possibilities as why to this sex difference was obtained in the present study. It is possible that boys might have either under or over reported their anxious symptoms. Secondly, it is also possible that in certain populations, boys' own perceptions of their anxious symptoms are less likely to be affected by the levels of stress experienced by their parents. Future research should further investigate possible sex differences in both community and clinical samples in order to corroborate the findings in this study.

*Is there a significant relationship between children's attribution style and their anxious symptoms?*

Theory suggests that attributional style, particularly maladaptive attribution style predicts anxiety in children (Houston, 1995; Rodriguez & Pehi, 1998). Therefore, it was hypothesized that a positive correlation between children's negative attributional style, and their anxious symptoms and a negative correlation between their positive attributional style, and their anxious symptoms would be found. This hypothesis was partially supported. In this regard, elevated negative attributional style was associated with higher levels of anxious symptoms in girls only. These results were not surprising given prior research indicating sex differences in the endorsement of negative cognitive bias in youth (Gluck et al., 2014) For example, research has

shown that female youth are more likely to interpret ambiguous scenarios more negatively than positively (i.e., interpretation bias or attribution style) than male youth (Gluck et al., 2014; van Beck & Debus, 2008). In addition, there was also a significant but negative relationship between girls' anxious symptoms and their positive attributional style, suggesting that girls with increasing anxious symptoms have tendency to attribute positive life outcomes to external, unstable and specific causes (e.g., your mother makes your favourite dinner because she had time that day, and she won't make you your favourite dinner on other days or do other nice things for you). This sex difference suggests that while girls' elevated maladaptive attribution style was related to their higher levels of anxious symptoms, this relationship was not significant for boys. There may be few possible reasons as to why boys' maladaptive attribution style was not significantly associated with their anxious symptoms in the present sample. Firstly, it is possible that boys in the present sample either under or over reported their anxious symptoms, and as such, there was an inconsistency between their levels of anxious symptoms and stated attributional style scores. It is also possible that they did not provide their honest opinions when asked for reasons to attribute the causes of hypothetical positive and negative life outcomes, and thus leading to incoherence between their attributional style scores and their anxious symptoms. It is also possible that for this particular child sample, boys' anxious symptoms were independent of their maladaptive attributional style. In this regard, it appears that boys' anxious symptoms were likely to be less influenced by their maladaptive attributional style, and thus not a possible risk factor for their anxious symptoms. Future research is warranted in this area to empirically confirm or disconfirm these possibilities and to gain a more comprehensive understanding of such sex differences in anxiety.

*Is there a significant relationship between children's perception of their parents' stress and their anxious symptoms?*

Research has emphasized the need to empirically investigate children's own perceptions of their parents' stress to better understand the mechanisms through which parenting stress and children's maladaptive attributional style impact child's anxiety (Rodriguez, 2011). It is postulated that children who perceive their parents to be experiencing increasing parental stress may develop irrational or persistent worries which might trigger or intensify their existing anxious symptoms (Ajilchi, Kargar & Ghoreishi, 2013). In addition, children who have a tendency to attribute negative life outcomes to internal, specific and global factors may also attribute their parents' stress in a similar manner (e.g., blaming themselves for the stress, assuming their parents will be stressed about many things and the stress will be present in their parents' lives permanently). This style of attributions may lead some children to experience increased distress and worries, and trigger anxiety or intensify their levels of anxious symptoms.

In this study, the relationship between children's perception of their parents' stress and their anxious symptoms was examined. The finding revealed a significant relationship between children's perceptions of their parents' stress and their anxious symptoms. This finding indicated that children who perceive that their parents are experiencing increasing levels of caregiving stress and/or interpersonal stress are more likely to report greater levels of anxious symptoms. Hence, anxiety prevention and interventions programs should specifically assess for children's perception and awareness of their parents' stress as it may impact their anxiety severity and how well they respond to these programs.

*Is there a significant relationship between child and parent perception of parental stress?*

The present study also found significant relationships among children's perception of their parents' stress and parenting stress induced from caregiving demands, personal matters as well as life stress. These significant relationships suggested that parental stress reported by children aligned well with the levels of stress reported by their parents. This shows that children in the present sample were likely to be well aware of their parents' difficulties. As this was the first study to author's knowledge to empirically measure this construct, future research is required to re-examine children's perception of their parents' stress with respect parent-reported parenting stress and related variables.

*Does parenting stress predict their child's anxious symptoms?*

Elevated parenting stress related to caregiving demands predicted higher levels of anxious symptoms in children. Consistent with the study's hypothesis and previous literature (Pahl et al., 2012), parents who reported that they experienced higher caregiving stress on the PSI-4 child domain items perceived their children to be more anxious. However in contrast to Rodriguez's (2011) findings, parents' personal stress related to factors such as their interpersonal relationships and their physical and mental health (i.e., PSI-4 parent domain) did not significantly predict their perceptions of their children's anxious symptoms.

The above findings suggest a significant association between parenting stress and child anxiety, and may possibly put children at a risk for developing anxiety when their parents are experiencing elevated caregiving stress. However, it is important to theoretically consider the bi-directionality implied in this association (Deater-Deckard, 2004). Children struggling with anxiety may exacerbate the caregiving parents experience just as stressed parents may impact their children's anxious symptoms. Nonetheless, the finding suggests anxiety intervention

programs should also consider providing appropriate respite and resources to parents in order to reduce their caregiving stress and demands.

*Does children's attribution style predict their anxious symptoms?*

Maladaptive attributional style was a predictor of girls' increasing levels of anxious symptoms. Girls who attributed negative life outcomes (e.g., friends not liking them) to internal, stable and global causes and accredited positive life outcomes (e.g., getting their favourite toys on their birthday) to external, unstable and specific causes also reported increased levels of anxious symptoms. According to the literature (Bell-Dolan et al., 1994; Kagan et al. 2004; Luten et al. 1997), children endorsing maladaptive attributional style are less likely to cope well with distress and tend to use less effective problem-solving skills to deal with daily life events and hassles. As a result, they tend to develop increasing worrying tendencies, irrational fears and avoidant behaviors. Therefore, maladaptive attributional style is understood to be underlying anxiety and related internalising issues experienced by children. The findings from this study indicate the need to evaluate girls' attributional style who are in programs aimed at treating and preventing their anxiety. In this regard, appropriate cognitive-behavioral interventions that challenge and correct children's maladaptive attributions may reduce girls' anxiety or minimize the risk for girls to develop anxiety.

*What is the inter-relationship between child's anxious symptoms, attributional style and child and parent perceptions of parenting stress?*

As the present results indicated that negative attributional style was a predictor of children's anxious symptoms in girls only, plausible inter-relationships between child's anxious symptoms, attributional style and child and parent perceptions of parenting stress were only examined across the female child sample. According to the analysis, parenting stress related to

caregiving demands (i.e., parenting stress-child domain) and personal stressors (i.e., parenting stress-parent domain; spousal relations, mental health, etc.) independently predicted girls' negative attributional style. Furthermore, when controlled for the effect of girls' negative attributional style on their anxious symptoms, parenting stress with respect to either domain did not have a significant impact on girls' anxious symptoms. Taken together, the results suggest that parenting stress had an indirect effect on girls' anxious symptoms through their negative attributional style. In other words, negative attributional style accounted for the mechanism through which parenting stress impacted girls' anxious symptoms. To some extent, these results are inconsistent with Rodriguez's (2011) findings. Firstly, Rodriguez (2011) did not report a sex difference in the inter-relationship among parenting stress, children's maladaptive attributional style and their anxiety. Secondly, whereas Rodriguez (2011) found an association between children's positive attributional style and their parents' stress and anxiety, the present study's findings indicated that girls' positive attributional style was not associated with their parents' stress. In fact, the present study found girls' negative attributional style to be associated with both their parents' stress and their own reports of their anxious symptoms. These differences may be due to sample differences between the studies. More specifically, Rodriguez's (2011) sample was composed of participants residing in New Zealand and the United States, whereas the current sample had Canadian participants and wider ethnic distribution. As such, differences between the results seen on the current study and Rodriguez's (2011) might have due to geographical and/or cultural variations. Secondly, half of the current sample was also consisted of identified gifted children, and characteristics associated with their giftedness might have contributed to the differences in the results. Hence, further research needs to further investigate the inter-

relationship among parenting stress, children's maladaptive attributional style, and their anxiety across other empirical samples to resolve these inconsistencies.

The results from this current study indicate that if parents experiencing increasing levels of stress have girls, their girls tend to attribute the causes of a negative life event (e.g., getting a bad grade on a test) to internal (e.g., it's their fault), global (e.g., they will get a bad grade on different subject tests as well) and stable (e.g., they will always gets bad grades) causes which in turns affects their anxious symptoms. Therefore, the stress in their family environment is affecting girls' cognitive styles, particularly their attitudes towards negative life events and outcomes, which in turn may put them at a greater risk for anxiety. Literature suggests that parents experiencing increased levels of stress may model poor coping and problem-solving styles which in turn influences how their children learns to cope and handle their daily life events (Rodriguez, 2011). In addition, increased stress levels may also manifest into problematic parenting style that may also affect children's attributional styles as well as their anxious symptoms (Pahl et al., 2012; Rodriguez, 2011). For example, the results from a study by Ajilchi and colleagues (2013) suggested that parents experiencing elevated stress were less warm towards their child, granted less anatomy and were more catastrophic when dealing with the child's problematic behaviors. Through examination of parenting styles and their relationship with the child's anxiety, they (Ajilchi et al., 2013) showed that overstressed parents were more likely to create a stressful environment for their children (due to their problematic parenting styles), making them feel less safe, worried, fearful and in less control over their life events and outcomes. Future research is warranted to further examine how specific cognitive (e.g., coping styles) and environmental (e.g., modeling of parental behaviors) mechanisms impact parents' stress on girls' negative attributional style. As discussed earlier, it is also important to consider

the bi-directional nature of these associations. It may also be possible that girls endorsing elevated negative attributional style are at a greater risk of having higher levels of anxious symptoms, which in turn puts greater levels of both caregiving and personal stress on parents. Nonetheless, these results emphasize the increasing need for anxiety prevention and intervention programs to address both cognitive (e.g., challenging and correcting child's maladaptive attribution style) and environmental (e.g., family stress, parent-child relationships) factors. In addition, programs should also consider the inclusion of assessment of parents relative to their stress and the provision of resources to potentially help them address any issue relative to their caregiving stress, personal health, interpersonal and/or mental health problems.

The present study also investigated the inter-relationship between girls' perception of their parents' stress and their negative attributional style with respect to their reports of their anxious symptoms. The results indicated that girls' perception of their parents stress independently predicted their own reports of their anxious symptoms as well as their negative attributional styles, indicating that girls' negative attribution style for life events partially accounted for the connection between their perception of their parents' stress and their anxious symptoms. That is, girls who perceived their parents to be experiencing increasing caregiving as well as personal stresses attributed negative life events to internal, global and stable causes (e.g., blaming herself for a fight she had with her friend, then also assuming that she will fight with other friends across several situations) which in turn affects their anxious symptoms. Given this association between girls' perception of their parents stress and their negative attributional style, future research should investigate to what extent, girls with anxiety are likely to blame themselves (negative attributional style) for their parents' stress.

*Are there sex, age and ethnic differences with respect to parenting stress, child's attribution style and child's anxious symptoms?*

In this study, parents of children who were 10 years old reported most elevated levels of overall parenting stress, followed by parents of children who were 11 and 8 years of age, respectively. Children who are 10 and 11 years of age undergo various life transitions as they prepare for their graduation to middle school, adjust to new academic and teacher expectations, grading practices, peer expectations as well as pubertal changes (Chung, Elias & Schneider, 1998). These transitions may induce psychological distress in children which in return may increase the stress levels of their parents (Chung et al., 1998). Similarly, children who are 10 and 11 years of age also reported the most elevated levels of maladaptive attributional styles. In comparison to other age groups, children in the 10-11 age groups within this study had an increased tendency to attribute positive life events to external, unstable and specific causes and negative events to internal, stable and global causes. These results indicate 10-11 year olds may be at a vulnerable stage, which in turn may induce greater stress for their parents as well. These results suggest that during these developmental years, parents are more likely to experience increasing stress and their children also appear to be at a greater risk of endorsing a more maladaptive attributional style which in turn may put them at an increased risk for anxiety. Therefore, there is a need to monitor children of this age group for family stressors and their cognitive coping styles (e.g., how they attribute life events) as it may impact their anxiety and related internalizing difficulties. However, it is important to note that children age 8 and 12 were under-represented in the current sample. Despite the fact that the specific statistical tool used for this particular analysis (i.e., MANOVA) controlled for the differences in the sample size, these results should still be

interpreted with caution. Finally, there was no age difference in the overall levels of anxious symptoms for both parent and child-reports.

The present study found no sex difference with respect to overall levels of parenting stress, child's attributional style and child and parent reports of the child's anxious symptoms. Specifically, there was no significant difference in the levels of anxious symptoms and attributional styles reported by girls vs. boys. In addition, there was also no significant difference in the levels of parenting stress and child's anxious symptoms reported by boys' vs. girls' parents. In this study only girls' negative attributional style was significantly associated with their anxious symptoms. These findings indicate that it is unlikely that girls on average have a greater tendency to endorse a more maladaptive attributional style than boys, but when they do, it is more likely to have an impact on or trigger their anxiety. This finding points to the need to empirically investigate whether there are any shared factors (e.g., genetic, cognitive or environmental) that trigger the emergence of maladaptive attributional style as well as anxiety in girls.

Ethnic differences with respect to parenting stress, child's attributional style and child's anxious symptoms were also investigated. In the current study, only child participants of Caucasian background and East/Southeast Asian (e.g., South Korea, Vietnam, the Philippines) decent were included for analysis as they represented the majority of the parent-child dyads. The results indicated that there were no significant differences in the overall levels of child-reported anxious symptoms and the child's total attributional styles (i.e., positive minus negative attributional style scores) between the two ethnic groups. Furthermore, parent-reports of their children's anxious symptoms and their overall parenting stress showed no significant differences when compared between the two ethnic groups. Due to the relative smaller sample size for the

East/Southeast Asian group, no independent prediction or correlations were conducted to examine differences in how the variables interacted with each other to predict children's anxious symptoms.

When considering the ethnic differences for patterns of anxiety in youth, it has been suggested that youth of East/Southeast Asian decent are likely to report lower anxiety than Caucasian youth (Anderson & Mayes, 1998). Youth of East/Southeast Asian are likely to be influenced by a collectivistic culture that values conformity and the suppression of emotions and behaviors that deviate from the typical norms and expectations (Wing, 2007). However, this does not necessarily mean that East/Southeast Asian youth are less likely to experience anxiety; rather, the anxiety may be presented differently, for example via somatic symptoms (Chen, Roberts, & Aday, 1998). Research has shown that in comparison to Caucasian youth, East/Southeast Asian youth have an increased tendency to please their parents by striving to meet a certain level of academic, employment or extra-curricular expectation which in turn may put increasing pressure on them to succeed, and when they are not able to meet these expectations or parental standards, they may experience shame which may lead to anxiety (Choi, 2002; Willgerodt & Thompson, 2006). Alternatively, some studies (Ginsburg & Silverman, 1996; Treadwell, Flannery-Shroeder, & Kendall, 1995) have found no differences in the levels of anxiety among various ethnic groups (e.g., European Americans, Asian Americans, and Latino Americans). According to the research, factors such as children's acculturation with the mainstream culture, cultural identity as well as parenting styles may mediate the relationship between ethnicity and children's anxiety as well as their beliefs and attitudes (Anderson & Mayes, 2010). The level of acculturation and cultural identity may be affected by the number of years the child has been living in the migrated country (in this case, Canada; Anderson & Mayes,

2010). In the present study, about 83% of child participants of East/Southeast Asian decent were born in Canada which might have reduced the impact of their cultural influences with respect to their perceptions of their anxiety as well as how they viewed their life events and outcomes. Therefore, future research should specifically measure the level of acculturation, ethnic cultural identity and integration when examining ethnic differences in child's anxiety and related risk factors.

*Are there any differences with respect to parenting stress, child's attributional style and child's anxious symptoms between schools and their respective educational curriculum (i.e., gifted versus non gifted program)?*

The present study also compared the overall means of parenting stress, children's attributional style as well as the child's anxious symptoms between the two participating schools and their respective educational context (i.e., gifted versus non-gifted programs). With exception to parenting stress, on average, there were no differences in the overall means of children's maladaptive attributional style and parent and self-reports of the child's anxious symptoms between two schools. Parents of children enrolled in the gifted program reported higher levels of parenting stress in comparison to parents of children enrolled in the non-gifted program. Prior research has indicated that parents of gifted children are often in increased need of services and resources to plan an appropriate education path for their gifted children (e.g., making sure that their gifted children have access to appropriate educational and recreational programs in the community and are provided appropriate home stimulation). In addition, they often need increased psychological services for their children's social and emotional development (e.g., developing and maintaining friendships; Silverman, & Golon, 2008). This finding suggests that in comparison to community samples, caregiving for gifted children may have additional

demands, which in turn may result in greater stress for parents and caregivers. Finally, as the overall sample comprised of more parent and child participants from the gifted program, the investigator was unable to conduct independent correlation and regression analyses between schools to investigate whether the relationships among and between the study variables varied between schools. Though the current results indicated significant difference in the overall means of parenting stress between the two participating schools, it should be recalled that correlation and regression analyses examining the inter-relationships between and among the study variables utilized samples composed of participants from both the schools. It could be argued that this approach of combining the two school samples for these analyses increases the variability and generalizability of the results to community populations. That being said, future research is needed to replicate the present study in both gifted and non-gifted child populations for comparison purposes.

#### **5.4 Summary**

This study investigated the relationship between parenting stress and children's attributional style on their anxious symptoms with respect to their sex, age, ethnicity and their own perceptions of their parents' stress in a sample of Canadian 8-12 age school children and their respective parents. The results revealed that parenting stress, particularly stress related to caregiving demands predicted parents' reports of their child's anxious symptoms. Secondly, maladaptive attributional style (i.e., decreased positive attribution and increased negative attributions) was a predictor of girls' reports of their anxious symptoms only. Furthermore, negative attributional style was found to be mediating the relationship between parenting stress and girls' reports of their anxious symptoms, and as such, parenting stress had an indirect effect on girls' anxious symptoms. Finally, girls' perceptions of their parents' stress was a predictor of

their girls' anxious symptoms, and their negative attributional style partially mediated this prediction. In regards to demographic differences, parents of children aged 10 reported the highest levels of parenting stress and children of age 10 and 11 reported the most elevated levels of maladaptive attributional style. However, overall means of parent and self reports of children's anxious symptoms did not vary by age or sex. Finally, overall means of parenting stress, child's maladaptive attributional style as well as parent and self reports of children's anxious symptoms did not vary between children and parents of Caucasian backgrounds and East/Southeast Asian origin.

### **5.5 Theoretical and Empirical Implications of the Study**

The present study makes important contributions to the advancement of our theoretical understanding and research practices in this field. To review, theory and prior literature suggest that parenting stress (Ajilchi et al., 2013; Pahl et al., 2012) and children's maladaptive *attributional style* (Bell-Dolan, 1994; Kagan et al., 2004) are important predictors of children's anxiety. Rodriguez (2011) advanced this theory further in her study by showing that parenting stress and children's maladaptive attributional style interact with each other to predict children's anxiety, and that children's maladaptive attributional style partially explains how parenting stress impacts child anxiety. The findings from the current study contribute to this present theory in a number of ways. First, the current findings showed that parenting stress related to only caregiving demands was a direct predictor of parents' reports of their children's anxious symptoms, while parenting stress related to both caregiving and personal matters had only an indirect effect on girls' reports of their anxious symptoms. Hence, these findings suggest that parent vs. child reports of the child's anxiety, different domains of parenting stress as well as the child's sex need to be taken into account to better understand the theoretical relationship between

parenting stress and children's anxiety. Second, the findings from the present study revealed that maladaptive attributional style only predicts anxious symptoms in girls, suggesting that the theoretical relationship between maladaptive attributional style and anxious symptoms may not be generalized to both sexes. Third, the present findings extended Rodriguez's (2011) findings by showing that parenting stress of both domains only interacted with girls' maladaptive attributional style, and did not have a direct effect on their anxious symptoms. This finding suggests that parenting stress may only have an indirect theoretical relationship with girls' perception of their anxiety, and no significant relationship with boys' perception of their anxiety. Fourth, the findings from this study advanced the present theory by revealing a new predictor for girls' anxiety (i.e. the perceived level of stress experienced by their parents.) In this regard, the findings suggest that girls who perceive their parents to be experiencing increased levels of stress may be at a greater risk for anxiety. In addition, girls' perception of their parents' stress also interacted with their maladaptive attributional style to predict their anxious levels. As such, these findings suggest that maladaptive attributional style may be a mechanism that explains how other predictors impact children's anxiety, and hence, it should be considered when conducting future research.

A number of empirical implications have emerged from this study. First, the present study points to the importance of employing a more comprehensive research design when examining the relationship between parenting stress and children's attributional style with respect to childhood anxiety. For example, while past researchers (Ajilchi et al., 2013; Pahl et al., 2012; Rodriguez, 2011) have examined the relationship between parenting stress and children's anxiety, they have not incorporated both parent and self reports of the child's anxiety in their study designs simultaneously to examine this relationship. Plus, very few of these research

studies have investigated this relationship by separating the construct of parenting stress into independent domains (i.e., child vs. parent domain). In the present study, incorporation of both parent and child reports of the child's anxious symptoms as well as independent examination of different parenting stress domains provided a more comprehensive understanding of how parenting stress may relate to children's anxiety. Moreover, the findings from this study also indicate that children's perception of their parents' stress should be measured and evaluated alongside parenting stress and children's attributional style to better understand their interactions and their prediction of anxiety. Future research should examine these variables along with additional risk factors (e.g., children's coping styles and efficacy, and parenting styles) to better understand the pathway and course of childhood anxiety. Ultimately, findings from such research studies may help increase the effectiveness of existing prevention and intervention programs for childhood anxiety.

### **5.6 Practical Implications of the Study**

It is important to consider how to translate what has been learned from this study to practical applications for mental health professionals working with children in schools, community centres, and clinical settings. The findings from this study have indicated that parenting stress, children's attributional style as well as their perceptions of their parents' stress affect children's anxiety level, and these effects vary according to the child's sex, all of which may better inform prevention and interventions methods for child anxiety.

Currently, various school divisions across Canada (e.g., British Columbia, Ontario) offer school-wide mental-health based prevention and intervention programs. For instance, FRIENDS FOR LIFE (Barrett, Farrell, Ollendick, & Dadds, 2006) is a ministry approved prevention program, delivered across various school districts in Canada which aims to strengthen resiliency

in students and teach them coping strategies to reduce anxiety and build self-confidence.

However, the findings from the current study point to the need for these types of school-based programs to also foster adaptive attributional style in children and to assess their perceptions and awareness of their parents' stress, and then to possibly provide appropriate counselling and services to both parents and children to reduce their anxiety symptoms.

In Canada, various government-sponsored family-based prevention programs are also available that focuses on fostering parent-child relationships as well as enhancing the physical, social and emotional development of the child (e.g., *Nobody's Perfect*; *Healthy Babies, Healthy Children*; Waddell, McEwan, Peters, Hua, & Garland, 2007). However, these programs primarily target pre-school age children and their parents. Therefore, there appears to be limited numbers of family-based or school-home collaborative prevention programs for school-age children available that attend to children and their parents or caregivers simultaneously to address the mental health of children as well as parental factors (e.g., caregiving demands, personal physical or mental health matters; Waddell et al., 2007). The findings from this study indicate the need to address parenting stress and children's perception of their parents' stress in efforts to reduce anxious symptoms in children. Hence, there appears to be need for current school-based anxiety prevention programs to collaborate with parents and to assess and address their needs as well. As such, programs such as FRIENDS OF LIFE could be modified to include a school-wide screening assessment to identify families experiencing elevated stress related to caregiving, interpersonal relationships, financial and employment troubles as well as physical and mental health matters of family members. Then those families could be possibly provided access to community and mental health services in an effort to reduce their stress. Furthermore, school psychologists and/or counsellors could meet with students from these high-stressed families to

monitor their overall well-being and to see whether they need to be provided with further support. In addition, the present findings also indicate that anxiety may operate differently in boys versus girls, suggesting that prevention programs may need to target and treat boys and girls differently. For example, the findings from this study indicate that prevention programs developed for girls should incorporate a specific focus on assessing, challenging and correcting girls' maladaptive attributional style and particularly evaluate the cognitive and emotional impacts of the family stress on them.

Currently, the gold standard intervention for child anxiety is cognitive behavioral therapy (CBT; Reynolds, Wilson, Austin & Hooper, 2012), which gets children to recognize and change their maladaptive thoughts, beliefs, fears or worries and related problematic behaviors through various strategies. Particularly, CBT focuses on building self-confidence, effective problem-solving and coping skills in children (Kendall, 2006). Results from the current study support the promotion of these factors in CBT as well as implementing a particular focus relative to children's attributional style, for girls specifically. Given the link between children's maladaptive attributional style and anxiety, the results indicate the need to specifically measure children's attributional style as a therapeutic outcome variable and to better evaluate the effectiveness of the intervention.

In line with the current findings, both research and practice have identified the need to incorporate parental factors in CBT programs (Barrett, Dadds & Rapee, 1996), which has come to be known as family-based CBT (F-CBT). For example, along with implementing the traditional methods of CBT, F-CBT helps to foster better parent-child relationships and provides parenting training. However, there is a lack of this kind of family-child approach in anxiety interventions in school-based anxiety interventions (Waddell et al., 2007). The findings from the

current study suggest the need for school-based anxiety intervention programs to assess parents' stress and then potentially provide appropriate respite, counselling and related services to parents as well.

### **5.7 Strengths, Limitations and Future Directions**

The present study had a number of strengths and some limitations that provide guidance for future research. In terms of strengths, this study included the measurement of parent and self reports of the child's anxious symptoms to better evaluate their relationships to parenting stress and children's attributional styles. A primary limitation of many prior studies in this field is the use of one or the other (Manassis 2001; Muris & Broeren, 2009). This study addressed this limitation and further demonstrated that the relationships between risk factors and anxious symptoms vary by whether parent or child's reports of the child's anxious symptoms are considered. Second, the study examined the inter-relation between multiple risk factors (i.e., parenting stress, attributional style, and child's perception of their parents' stress) and child's anxious symptoms. One limitation in the field is the tendency for studies to examine these risk factors separately with respect to child's anxiety, and thus limiting our understanding of how these risk factors may interact with each other to predict child's anxiety (Muris & Broeren, 2009). In an effort to address this limitation, the present study included measurement and analysis of multiple risk factors, namely parenting stress, children's attributional style and their perception of parents' stress. In doing so, the findings revealed that girls' negative attributional style interacted with both parenting stress and their perceptions of their parenting stress to predict their anxious symptoms. Such findings can help to provide better clinical recommendations as to how to improve existing prevention and intervention programs for girl's anxiety. In this regard, there is a need to incorporate both the child's internal, cognitive factors (e.g., attributional style)

as well as his/her environmental factors (e.g., parenting stress) when designing and implementing these programs. Third, the study attempted to include a measurement of a new variable that has not been studied empirically in the field before: children's perception of their parents' stress. Introduction of this new variable suggested that it may be a predictor of child's anxiety as well, and be an important intervention consideration.

This study had four primary limitations. First, one of the measures utilized in the study, CASQ had low internal consistency for the current sample, and thus the findings from this measure need to be considered tentatively. Prior studies using this measure (e.g., Rodriguez, 2011) did not report their sample's internal consistency coefficient, and thus it is difficult to assert whether this was just a problem within the current study. Nonetheless, the findings indicate the need to design a better tool to measure children's attributional style. The CASQ measures children's attributional style globally, that is, it measures how children will attribute various life outcomes and events (e.g., academic, peer-or family-related). While measurement of global children's attributional style has the benefit of generalizing the responses to various life outcomes and events, it may be helpful to break down the CASQ scale to different domains of life events as it is possible that children's maladaptive attributional style pertains to specific life outcomes and events but not all. Second, the generalizability of the study's findings sample may be limited. The participants in this study included children in grades three to seven from two schools in Alberta, Canada. While efforts were made by the researcher to recruit a larger sample from additional schools, the efforts were hindered by the time restriction allocated to finish the project. In addition, considering that the majority of parents in this study completed higher levels of education, the population of parents in this study may not well represent the distribution of parental socio-economic status within Canada. Socio-economic status is an important variable to

consider, specifically when examining parenting stress. Therefore, it is acknowledged that the sample in this study may not be representative of the larger Canadian child and parent populations. Third, as discussed earlier, the CPPS is a novel measure and thus, presently lacks appropriate reliability and validity data to qualify its psychometric properties. As such, results obtained from the CPPS are only preliminary. Fourth and finally, the study is limited by the cross-sectional nature of the data collection. While parenting stress, girls' maladaptive attribution style and their perceptions of their parents' stress were found to be significantly related to the child's anxious symptoms, results do not provide evidence of a cause and effect relationship. Experimental and longitudinal research may help establish if elevated level of parenting stress does have a causal effect on the child's anxious symptoms. For example, longitudinal research can better investigate how parenting stress can change over time and how it is related to and possibly trigger increasing levels of anxious symptoms in the child.

## **5.8 Conclusion**

Childhood anxiety disorders are one of the most prevalent pediatric psychopathologies (Costello et al., 2005), and if remain untreated, can lead to significant distress and life impairments (Last, Hansen, & Franco, 1997; Woodward & Fergusson, 2001). Given this prognosis, it is crucial to have a comprehensive understanding of how different risk factors impact anxiety, both independently and in tandem to better prevent and treat child anxiety (Degnan et al., 2010). This study examined the independent and mutual influence of parenting stress, child's attributional style and their perceptions of their parents' stress on the child's anxious symptoms with respect to the child's age, sex and ethnicity. Despite limitations, the research extends the current literature with respect to the relationships between parenting stress, child's maladaptive attributional style, child's perception of their parents' stress and child's

anxious symptoms. The study also highlights the importance of continued research in this area in order to better understand child anxiety and ultimately better guide assessment, prevention and intervention efforts.

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## Appendix A-Demographic form

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

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

**CHILD'S INFORMATION**Sex: ☐ Female ☐ Male

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

Ethnicity: ☐ Aboriginal ☐ African

☐ North American (USA, Canada) ☐ Asian (East & Southeast)

☐ Asian (South) ☐ Caribbean

☐ European ☐ Latin, Central, & South American

☐ Middle Eastern ☐ Pacific Islander

☐ Other (please specify): \_\_\_\_\_

Was your child born in Canada? ☐ Yes ☐ NoIf *no*, please indicate how many years your child has lived in Canada: \_\_\_\_\_Is English your child's first language? ☐ Yes ☐ NoIf *no*, please indicate how many years your child has spoken English: \_\_\_\_\_**PARENTS' AND FAMILY INFORMATION**

Parent 1 (person filling out the form):

Age:

- ☐ 20 or younger
- ☐ 21-25
- ☐ 26-30
- ☐ 31-35
- ☐ 36-40

Parent 2:

Age:

- ☐ 20 or younger
- ☐ 21-25
- ☐ 26-30
- ☐ 31-35
- ☐ 36-40

☐ 41-45☐ 46-50☐ 51-55☐ 56-60☐ 61-65☐ 65 or older**Employment:**

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Parent 1 (person filling out the form):

**Highest Level of Education Completed:**☐ Some High School☐ High School Completed☐ Some University/College☐ University (Bachelor's)/  
College Completed☐ Some Graduate/Professional Schooling☐ Graduate (Master's/PhD)/Professional  
School Completed☐ 41-45☐ 46-50☐ 51-55☐ 56-60☐ 61-65☐ 65 or older**Employment:**

---

Parent 2:

**Highest Level of Education Completed:**☐ Some High School☐ High School Completed☐ Some University/College☐ University (Bachelor's)/  
College Completed☐ Some Graduate/Professional Schooling☐ Graduate (Master's/PhD)/Professional  
School Completed

Were both parents born in Canada:

☐ Yes☐ NoIf *no*, please indicate how many years each (or one) parent has lived in Canada:

Parent 1: \_\_\_\_\_

Parent 2: \_\_\_\_\_

**Language(s) spoken at home:** \_\_\_\_\_

## Appendix B- Informed consent and informational letter for parents



**UNIVERSITY OF CALGARY**  
WERKLUND SCHOOL OF EDUCATION

**Dear Parents or Guardians,**

Researchers from the University of Calgary are currently doing a study in your child's school, and yours and your child's participation in the study will be greatly appreciated. The purpose of the study is to better understand children's worries and anxiety and how their worries and anxieties are related to their beliefs, reasoning styles and the stress their parents or guardians experience on a daily basis. Anxiety is known to be the most common form of mental health concern among children. It is well known that anxiety affects many children and it is known to have various adverse effects on children's academic outcomes as well.

If you decide to participate in the study, you and your child will be completing a couple of questionnaires, and your responses will help to provide better prevention and intervention services to children with anxiety. Please note that yours and your child's participation in this study are completely voluntary, and you and your child will have the right to withdraw from the study at any point of time. All your responses will remain confidential and none of the questionnaires you and your child fill out will have yours or child's name on them. Finally, this study is not part of your child's educational curriculum.

If you are interested to participate in the study, please read the attached **parent's consent form** for further details **and return the form with your signature to your child's homeroom teacher by** \_\_\_\_\_. If you have any questions or concerns or you are interested to find out more information about the study, then please don't hesitate to contact us; our contact information is attached to this letter. We sincerely thank you for your support in our research.

Sincerely,

**Primary Researcher**

*Maisha M. Syeda, MSc. Student*

*Educational Studies in Psychology – Faculty of Education*

*(587) 896-7521– mmsyeda@ucalgary.ca*

**Supervisor**

*Dr. Jac J. W. Andrews*

*Educational Studies in Psychology – Faculty of Education*

*(403) 220-7503- jandrews@ucalgary.ca*



## Consent Agreement

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### **Name of Researchers, Faculty, Department, Telephone & E-mail**

Maisha M. Syeda | Faculty of Education | Educational Psychology | (587) 896-7521;  
mmsyeda@ucalgary.ca

### **Supervisor:**

Dr. Jac J. W. Andrews | Faculty of Education | Educational Psychology | (403) 220-7503;  
jandrews@ucalgary.ca

### **Title of Project:**

Relationship between Parenting Stress and Children's Attributional Style in Childhood Anxiety

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This consent form, a copy of which has been given to you, is only part of the process of informed consent. If you want more details about something mentioned here or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

The University of Calgary Conjoint Faculties Research Ethics has approved this research study.

You and your child are being asked to participate in a research study. Before you give your consent to be a volunteer, it is important that you read the following information and ask as many questions as necessary to be sure you understand what you and your child will be asked to do.

### **Purpose of the Study:**

The purpose of the study is to better understand children's worries. To elaborate, we are interested to find out how children's worries are impacted by their beliefs, reasoning styles, and the stress their parents experience on a daily basis. The results from this study will help to provide better prevention and intervention services to children who tend to worry a lot.

Please be advised that this study is not part of your child's established educational curriculum. Participation, non-participation or withdrawal from the study will have no impact or consequence on your children's school grades, learning or on their continuing relationship with the school and respective school board.

*The following provides you with details of the study, the type of information that will be collected for the purposes of the study, and the ways in which this information will be used.*

### **What Will I Be Asked To Do?**

If you agree to participate in this study, you will be asked to sign this consent form. Then, you will be asked to complete three questionnaires that will include questions pertaining to your child's possible worrying tendencies, your parenting stress and demographic information (e.g. ethnicity, education, language(s) spoken at home). It is estimated that the questionnaires will take approximately 30 minutes to complete. Your participation on the study is completely voluntary, and you can choose to withdraw from the study at any point.

Your child will be asked to read and sign an assent form (if your child is between 11-12 of age) or provide a verbal assent (if your child is between 8-10 of age) before he/she begins his/her participation in the study. The primary researcher will go over the assent form with your child before he/she agrees to participate in the study. It will be clearly stated in the assent form that your child's participation is completely voluntary and that they are able to withdraw from the study at any time without any consequences. Your child will then complete three questionnaires in school that will include questions pertaining to their possible worrying symptoms, their beliefs and reasoning styles (how they assign causes to their life events and outcomes) and their perceptions of their parents' stress. It is estimated that the questionnaires will take about 30-40 minutes to complete. At the completion of these questionnaires, the primary researcher will debrief your child and explain the purpose of the study and also, how their responses will be used.

### **Use of Study Information**

The information collected (both your and child's responses) will be used by the primary researcher as part of her thesis requirement, and for the generation of reports, research publications, and professional/research presentations. Please be noted that all information collected will remain confidential. That is, all questionnaire responses (yours and your child's) and any identifiable information including yours or your child's name, the school your child currently attends and his/her grades will not displayed or reported on any documents generated for the purposes of the study. Furthermore, in order to protect the confidentiality of your child, you will not be permitted to see any of your child's responses. Similarly, your responses will not be shown, shared or discussed with your child either. If anytime you or your child choose to exercise the right to withdraw from the study, all data collected up to the point of withdrawal will be discarded.

### **What Type of Personal Information Will Be Collected?**

Should you agree to participate, you will be asked to provide your age, employment and education information. In addition, you will also be asked to provide your child's age, sex, ethnicity, number of year your child has lived in Canada, and language(s) he/she speaks at home.

### **Are there Risks or Benefits if I Participate?**

Your child might experience some mild discomfort when answering questions about possible worrying tendencies, reasoning styles and their perceptions of their parents' stress. Similarly, you might also experience some discomfort when answering questions about your parenting stress

and your child's potential worrying tendencies. Although this risk is minimal, you and/or your child are free to withdraw at any time if this becomes too uncomfortable for you or your child. **Please note that in case your child experiences increased discomfort or distress from participating in the study, we will make sure that appropriate care and attention are provided and they will be withdrawn from the study immediately. Specifically, psychological counselling and referrals and resources for professional psychological support will be provided to your child to help them feel better. In addition, similar psychological counselling and referrals and resources for other professional psychological support will be provided to you as well if you experience increased discomfort or distress from participating in the study.** However, we don't anticipate such levels of discomfort to be arising among our participants.

You and/or your child may refuse to any of the questions on the questionnaires. You and/or your child may withdraw your participation in this study at any time.

Your child will not directly benefit from participating in this study. The anticipated benefit of this study is that the information learned from this study will advance our understanding about the interrelationship among parenting stress, children's beliefs and reasoning styles and their worries. In addition, the study might provide further support for the need to evaluate parenting stress and children's beliefs and reasoning styles with respect to their age and ethnicity when assessing and treating children who tend to worry a lot. Lastly, information learned from the study might help to develop more effective prevention and intervention programs for ethnically diverse children with worrying issues.

### **What Happens to the Information I Provide?**

Information obtained from this study will be removed of all identifiable information and remain anonymous. The questionnaires completed by you or your child will not have your name, your child's name or related identifiable information. The information and corresponding results will be retained by the primary researcher and will be kept in a locked cabinet at the University of Calgary. Furthermore, information gained from the study will only be accessible to the primary researcher and her supervisor. The data generated from this study will be used by the primary researcher to facilitate her Master's thesis and produce corresponding research publications, and presentations. Furthermore, after a period of ten years, all data collected by the primary researcher will be permanently erased. A copy of the final research report will be made available to school(s)/school districts upon request.

### ***Signatures (written consent)***

Your signature on this form indicates that you 1) understand to your satisfaction the information provided to you about your participation in this research project, and 2) agree to participate as a research subject.

In no way does this waive your legal rights nor release the investigators, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from this


research project at any time. You should feel free to ask for clarification or new information throughout your participation.

Child's Name: (please print) \_\_\_\_\_

Parent/Guardian's Name: (please print) \_\_\_\_\_

Parent/Guardian's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Researcher's Name: (please print) MAISHA M. SYEDA

Researcher's Signature:  \_\_\_\_\_ Date: \_\_\_\_\_  
Maisha Syeda

### **Questions/ Concerns**

If you have any further questions or want clarifications regarding this research and/ or your participation, please contact:

#### **Primary Researcher**

Maisha M. Syeda, MSc. Student  
Educational Studies in Psychology – Faculty of Education  
(587) 896-7521– mmsyeda@ucalgary.ca  
*Or*

#### **Supervisor**

Dr. Jac J. W. Andrews  
Educational Studies in Psychology – Faculty of Education  
(403) 220-7503- jandrews@ucalgary.ca

If you have any concerns about the way you've been treated as a participant, please contact the Ethics Resource Officer, Research Services Office, University of Calgary at (403) 220-3870, e-mail: ruburrows@ucalgary.ca

A copy of this consent form has been given to you to keep for your records and reference. The investigator has kept a copy of the consent form.

## Appendix C-Instructional letter for parent participants

### Instructions for Parent Participants

**Dear Parents/Guardians,**

Thank you again for agreeing to participate in the research, "Relationship between Parenting Stress and Children's Attributional Style in Childhood Anxiety". As per the research protocol, you are asked to complete a couple of research questionnaires to help us better understand how parenting stress and other demographic factors impact children's anxiety and vice-versa. Please refer to the following document for further instructions:

The following research package contains the following questionnaires:

**1. MASC-2 Parent Form (Multidimensional Anxiety Scales for Children-2<sup>nd</sup> Edition)**

**2. Parenting Stress Index-4**

**3. A Demographic Form**

***Step 1:***

Fill out the questionnaires using a pen or pencil

***Step 2:***

Please place the questionnaires in the pre-stamped envelope and mail them back to the researchers.

Mailing Address: Dean's Office, EDT 1320, Education Tower, 2500 University Drive NW, CALGARY, AB T2N 1N4

Please don't hesitate to contact the researchers if you have any inquiry regarding items on any of the questionnaires. It would be greatly appreciated if the completed questionnaires could be returned back to the researchers within 7-10 days.

#### **Primary Researcher**

Maisha M. Syeda, MSc. Student  
Educational Studies in Psychology-Werklund School of Education  
(587) 896-7521-mmsyeda@ucalgary.ca

#### **Supervisor**

Dr. Jac J. W. Andrews  
Educational Studies in Psychology-Werklund School of Education  
(403) 220-7503-jandrews@ucalgary.ca