

**CATASTROPHIZING:  
A PREDICTOR OF DEPRESSIVE SYMPTOMS IN CHILDREN**

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Catastrophizing: A predictor of depressive symptoms in children

by

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### Abstract

Drawing from the hopelessness theory of depression, the purpose of this study was to determine whether consistently inferring pessimistic consequences (i.e. inferring consequences as being catastrophic – referred to as catastrophizing) is predictive of concurrent depressive symptoms in children. Catastrophizing, depressive symptoms, and anxious symptoms were assessed in a non-clinical sample consisting of 158 third-, fifth-, and seventh-grade children. Inconsistent with expectations, catastrophizing was found to be predictive of depressive symptoms only in younger children and not older children. Younger children did not appear to catastrophize more frequently than older children. As predicted, this study did provide preliminary evidence suggesting that catastrophizing is a stronger predictor of depressive symptoms in children who exhibit elevated levels of both anxious and depressive symptoms than those who do not exhibit this combination of symptoms. Results from the third- and fifth- grade samples provide moderate support for the generalizability of hopelessness theory to childhood depression; however, results from the seventh-grade sample were inconclusive as low internal consistencies of the catastrophizing measures were found in this age group. Future studies might be advised to consider seventh-grade participants as comprising an adolescent sample rather than a child sample, and thus consider using measures developed for adolescents or adults with this age group.

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### Catastrophizing: A Predictor of Depressive Symptoms in Children

Depression is commonly thought of in terms of its affective symptoms including low mood, feelings of worthlessness, and guilt; however, in addition to these symptoms, it is defined by somatic (i.e., changes in appetite, insomnia/hypersomnia, fatigue), behavioural (i.e., psychomotor agitation/retardation), and cognitive symptoms (i.e., impaired concentration, thoughts of death or suicide) (American Psychiatric Association, 2000). National reports state that approximately 8 – 12% of all Canadians will experience major depression in their lifetime (Patten et al., 2006; Public Health Agency of Canada, 2002), and the prevalence of childhood depression is estimated to be as high as 3% (Costello, Erkanli, & Angold, 2006). Some of the cognitive symptoms of depression, such as reduced motivation, and difficulty concentrating or paying attention, can impair a child's ability to learn and perform well academically (Faubert, Forehand, Long, Burke, & Faust, 1987).

As some of the symptoms of depression can impair a child's ability to perform their daily activities, it is important to gain knowledge as to how to prevent the development of depression in children. One avenue is through prediction. If one can predict depressive symptomology, one can intervene before the symptoms worsen and depression develops. Children who exhibit depressive symptoms may perceive life differently than those who do not exhibit these symptoms. In particular, these children who exhibit depressive symptomology may see the consequences of something unfortunate in their lives as being worse than what they probably would be, which is referred to as catastrophizing. This way of thinking can become maladaptive. Catastrophizing, a potential cognitive risk factor for depression, may be associated with

concurrent depressive symptoms and may predict symptoms of depression.

Environmental risk factors (e.g., lack of social support, stressful life events, abuse) and biological risk factors (e.g., female gender, age, family history), have been studied in both children and adults, and their association with depression has been documented (e.g., Bradley, Binder, & Epstein, 2008; Kaufman, Yang, & Douglas-Palumberi, 2006; Lau & Eley, 2008; Renshaw, 2007; Rowet al., 2008; Wang, Lesage, & Schmitz, 2008).

However, potential cognitive risk factors as described through cognitive models of depression have been studied primarily in adults. As a result, the understanding of childhood depression from a cognitive perspective is lacking. If an association is found between catastrophizing and depression, catastrophizing may be a potential cognitive risk factor for childhood depression, which would provide an additional avenue for identifying children who are at risk for developing depression, and may provide some direction in the improvement of intervention programs. The best way to predict childhood depression is to discover many potential risk factors for childhood depression, which in turn will improve our ability to prevent the development of depression in children.

#### Cognition and Depression

There has been a great deal of interest in and dedication to the study of the cognitive factors and their relationship with depression, as is demonstrated by several prominent theories of depression (e.g., Abramson, Metalsky, & Alloy, 1989; Beck, 1967/76; Ellis, 1987). In terms of the cognitive factors, one theory, the hopelessness theory of depression, suggests that in the face of a negative event, three pessimistic inferential styles act as risk factors for depression (Abramson et al., 1989; Brozina, & Abela, 2006): (1) having a pessimistic causal inferential style, (2) inferring pessimistic

consequences, and (3) making pessimistic self-appraisals. These factors all contribute to becoming hopeless. Hopelessness is theorized to be a sufficient cause of hopelessness depression, a subtype of depression defined primarily by motivation- and emotion-related symptoms (e.g., apathy, sad affect, lack of energy, psychomotor retardation) (Abramson et al., 1989; Joiner, Wingate, & Otamendi, 2005).

In order to understand the role of cognition in depressive symptomology, one might begin by examining the theories that propose a relationship between the way one thinks about the circumstances in their life and depression. During cognitive maturation, children develop the ability to make predictions and inferences. These predictions are based on their theories about the world which, in turn, are based on their life experiences (Gopnik, & Wellman, 1994). Future-oriented predictions have been demonstrated in children as young as the second grade. Dodge (1980) demonstrated in his study, examining aggressive behaviour in children, that his second-grade subsample made predictions of future hostility by a peer who was described as an instigator in an event involving an aggressive behavioural interaction. Prediction-making is an important skill as it allows individuals to modify their actions and behaviours in anticipation of an event. These predictions or inferences can become maladaptive, such that an individual might base their inferences on the negative components of an event while ignoring the positive (McDermut, Haaga, & Bilek, 1997). Some individuals seem to exhibit a distorted perception and interpretation about the events in their life. These interpretations are often referred to as irrational beliefs or cognitive errors (Beck, 1967, 1976; Ellis, 1987). Cognitive errors have been theorized to be implicated in the maintenance of major

depressive disorder by several cognitive theories of depression (e.g., Abramson et al., 1989; Beck, 1967, 1976; Ellis, 1987).

The relationship between cognitive processes and depression was first introduced in Beck's Cognitive Model of depression (Beck, 1967, 1976). Beck's model proposes that depressed individuals exhibit a negative bias in their thinking which can lead to depression. Individuals who are predisposed to depression have dysfunctional schemata which govern their interpretation of events. These schemata are moulded by an individual's past experiences which are activated by negative events or stress. The dysfunctional schemata predispose the individual to develop a negative bias in their thoughts which would lead to the development of depression (Rush, Weissenburger, & Eaves, 1986). The theory has strong empirical support as it has been found that anxiety and depression can manifest themselves partly as a result of cognitive errors (Beck, 1963; Lefebvre, 1980, 1981; Turner, & Cole, 1994; Weems, Berman, Silverman, & Saavedra, 2001).

Later theories of depression build upon, expand, and modify some of the ideas in Beck's model. As such, it is important to understand Beck's early model of depression in order to gain a deeper understanding and appreciation for the more recent cognitive models of depression. Although Beck's model acknowledges the contribution of the environment in the development of depression, the model is primarily cognitively focused. A theory that emphasizes both the role of the environment and cognitive beliefs in the development of depressive symptomatology is the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989).

#### Hopelessness Theory

The hopelessness theory of depression was developed by Abramson, Metalsky, and Alloy (1989) as a cognitive diathesis-stress model for depression. A diathesis is a predisposition to an abnormality or disorder. For example, certain genetics can predispose an individual for developing high blood pressure at some point in their life, that is, certain genetics are a diathesis for high blood pressure. A diathesis-stress model posits that a certain pre-existing characteristic (the diathesis) puts an individual at increased risk for developing a disorder when confronted with a stressful situation (the stress) (Cole et al., 2008). The theory can be said to be a more inclusive theory than Beck's Cognitive Theory in that it accounts for an additional factor shown to be related to depression: the environment. The hopelessness theory of depression is a revision and expansion of an earlier theory by Abramson, Seligman, and Teasdale, the 1978 reformulated theory of helplessness and depression. The revised theory hypothesizes a new subtype of depression, emphasizes the diathesis-stress component in the development of depression, proposes additional diatheses for depression, and outlines its application to the symptoms, course, and prevention of depression.

Hopelessness theory proposes that there exists an unidentified subtype of depression, which the authors refer to as hopelessness depression. Hopelessness depression is defined by motivation- and emotion-related symptoms (i.e., retarded voluntary responses, sad affect, suicide, lack of energy, apathy, psychomotor retardation, sleep disturbance, difficulty in concentration, and mood exacerbated negative cognitions; Abramson et al., 1989) and is conceptualized as a subtype of the current subclassifications of depression as defined by the Diagnostic and Statistical Manual (American Psychiatric Association, 2000). The precursor to hopelessness depression is

the state of hopelessness itself. Hopelessness as a state is defined as having both negative expectations and feelings of helplessness. Specifically, a hopeless individual feels that they have no influence over the probability of the occurrence of a highly desired outcome, which they initially perceive to be low.

The development of hopelessness begins with the perceived occurrence of a negative event that holds great importance to an individual. Individuals with a certain pessimistic inferential style (the diathesis) who are confronted with a negative event (the stress) are put at greater risk of becoming hopeless, which could lead to the development of hopelessness depression. Abramson and colleagues (1989) identify three types of inferences that can be made following a negative event: (1) inferences about the cause of the negative event, (2) inferences about the consequence of the negative event, and (3) inferences made about the self following a negative event. The three types of inferences and their relationship to hopelessness are outlined below.

#### *Inferences about Cause*

An inference about the cause of an event is referred to as an attribution. One's attributional style is the general way in which an individual makes these inferences across a wide range of events. Weiner (1974, as cited in Hewitt, Foxcroft, & MacDonald, 2004) and Abramson and colleagues (1989) developed similar models of attributional style in which attributional style is comprised of three components, two of which the models have in common: internality and stability. Internality varies between internal attributions (in which the individual blames themselves for a problem) and external attributions (in which the individual denotes blame to something outside of themselves). For example, an internal causal attribution for a negative event, such as not being selected for the swim

team, would be “I am a weak swimmer” while an external causal attribution would be “the coach tends to choose swimmers who were on the swim team in the previous year”. Stability is defined as “the degree of temporal consistency [or permanency] of the cause... [and its likelihood] to be present in the future” (Hewitt et al., 2004, p.1484). For example, following from the previous scenario, a stable causal attribution would be “My body proportions are not ideal for swimming” while an unstable causal attribution would be “I may be short now but I still have some growing to do”.

The two models differ in their final component of attributional style. Weiner’s model (1974 as cited in Hewitt et al., 2004) uses controllability as a third factor, which in essence, is one’s sense of their helplessness. An individual must feel helpless in order to make negative attributions about the cause of an event. Conversely, in hopelessness theory, Abramson and colleagues (1989) designated globality as the third factor, as they defined helplessness as being independent of the way one perceives the circumstances of a negative event. They define globality as the extent to which a cause will reoccur in other scenarios. For example, continuing in line with the example, not being selected for the swim team, “I am not a strong athlete” would be considered a global causal attribution whereas “I am not a strong swimmer” would be a more specific causal attribution.

Hewitt et al. (2004) discuss that Weiner’s internality, stability, and controllability model of attributional style is a useful model in terms of predicting behaviour, but there is stronger support for Abramson’s model in predicting psychopathological states (Amirkhan, 1998 as cited in Hewitt et al., 2004). Thus, it follows that in hopelessness theory, a theory based in psychopathology, attributional style varies on the three dimensions of internality, stability, and globality.

The internality, stability, and globality of an attribution can be influenced by the characteristics of the negative event itself, which include its consensus, consistency, and distinctiveness (Abramson et al., 1989). The consensus of an event refers to the degree to which the event is also a negative event for other individuals. Consistency is how often the negative event seems to reoccur. Distinctiveness refers to the specificity of a negative event to a situation. Negative events (e.g., not being picked for the swim team) that are low in consensus (e.g., only a couple others were not picked for the swim team), high in consistency (e.g., having never been picked for the swim team in previous attempts), and low in distinctiveness (e.g., not being picked for other sports teams as well) can lead an individual to make causal attributions that are internal, stable, and global. An individual exhibiting internal, stable, and global attributions is said to have a negative attributional style which could lead to generalized hopelessness (Abramson et al., 1989).

In an extension to hopelessness theory, it can be inferred from a suggestion made by Rose and Abramson (1992) that a child's natural disposition is to make external, unstable, and specific attributions following a negative event ensuring a maintained state of hopefulness (Rose & Abramson, 1992 as cited in Gibb, Abramson, Alloy, & Marx, 2003). If the negative events in a child's life become chronic, repeated contradictions are provided to the child's external, unstable, and specific attributions (Rose & Abramson, 1992 as cited in Gibb et al., 2003). For example, it has been reported that lower social and academic competence may precede depression in that a repeated reinforcement of failure can elicit depressive symptomology (Cole, 1990). In the context of potential cognitive factors influencing the development of depressive symptomology, the child begins to generate internal, stable, and global attributions, which could induce a state of

hopelessness. Over time these internal, stable, and global inferences generalize to other situations and events, leaving the child to develop a negative attributional style (one of the diatheses) which is theorized to potentially lead to hopelessness and, later, on hopelessness depression.

#### *Inferences about Consequence*

Catastrophizing, inferring pessimistic and catastrophic consequences of a negative event, falls into the second type of pessimistic inferences as proposed by Abramson and colleagues (1989), inferences made about the consequences of a negative event. The inferences made about the consequences of a negative event can be inferred to be catastrophic (Abramson et al., 1989). An individual who catastrophizes the consequences feels that the occurrence of a negative event will lead to catastrophic negative outcomes. Individuals who consistently catastrophize the consequences of a negative event (another diathesis) are theorized to develop feelings of hopelessness, resulting in an increased risk of developing hopelessness depression.

Catastrophizing has been commonly associated with the aetiology and symptoms of anxiety (Davey & Levy, 1999). In relation to anxiety, catastrophizing is a worrying process of the outcomes of a situation. Catastrophizing, as a cognitive error, can be quantified by the frequency of the catastrophizing thought process following negative events and the number of catastrophic outcomes an individual generates, referred to as the catastrophizing chain (Davey & Levy, 1999). The chain represents an individual's perception of how one negative event will cause a subsequent negative event which will cause a subsequent negative event and so on.

Johnston and Davey (1997) studied the relationship between catastrophizing and mood. In their study they manipulated the mood of their participants by presenting one of three news videos that would either induce a positive, negative, or neutral mood; the researchers then administered a catastrophizing interview. Their rationale was that being consistently exposed to disturbing events from the media can evoke emotional discomfort which may “facilitate the occurrence of other psychologically undesirable processes which have a detrimental effect on psychological health in general” (Johnston & Davey, 1997, p. 85). While no significant differences in catastrophizing steps were observed between the positive and neutral mood group, there was an overall main effect of group where the negative mood group displayed significantly more catastrophizing steps than both the positive and neutral group (Johnston & Davey, 1997). Negative mood, in this experimental design, demonstrated an effect of increasing catastrophizing, and as negative mood is one of the symptoms of depression, this experiment provides some support for a relationship existing between catastrophizing and depression.

#### *Inferences about the self*

The third type of pessimistic inferences, as proposed by Abramson and colleagues (1989) are inferences made about oneself following a negative event. When an individual fails to achieve a desired outcome, they determine whether this negative event implies anything about them and, if so, what it implies. Inferences may be made about one's self-worth, self-efficacy, personality, or desirability. The resulting inferences influence the individual's perceived ability to attain future desired outcomes. For example, an individual who has just found out that they were not accepted into the graduate school of their choice might then make several self-referential inferences, such as they may

construe the rejection as an indication that they are worthless. Additionally, they might experience a reduced sense of self-efficacy in that they feel it is impossible for them to improve their application. As a result of these inferences, their perceived ability to attain their desired outcome might be diminished: the individual believes they will never be able to pursue graduate studies.

These types of inferences of the self are theorized to lead to hopelessness and in turn hopelessness depression; however, Abramson and colleagues (1989) hypothesized that inferences made about the self are most likely not independent from inferences made of the cause and consequence of a negative event. It would follow that it may not be as useful to study the relationship between negative self-appraisals and hopelessness (since it is most likely not a distinct pessimistic inferential style) as it would be to study either attributional style or catastrophizing when investigating the manifestation of depressive symptomology. This introduction to the third type of inferences, inferences made about self, completes the overview of hopelessness theory; however, a further in depth review of inferences made about the self and its relationship with depressive symptomology is beyond the scope of this paper.

The three pessimistic inferential styles, a negative attributional style (comprised of internal, stable, and global attributions), a consistent catastrophizing of consequences, and a negative self-appraisal (e.g., about one's self-worth, self-efficacy, etc.) are, in sum, referred to as a depressogenic inferential style (Abramson et al., 1989) and represent diatheses for hopelessness depression. These diatheses coupled with stressful negative life events can leave an individual feeling hopeless, increasing their risk of developing hopelessness depression.

The majority of the research that has investigated the relationship between attributional style and depression has focused on adults. The limited research concerning children, however, has demonstrated a weak relationship with respect to hopelessness theory between attributional style and depression in children between the ages of 9 and 11 years (Cole & Turner, 1993; Gibb et al., 2006; Gibb & Alloy, 2006; Turner & Cole, 1994). Hopelessness theory was modeled using adults and may not be a good model for understanding the manifestation of childhood depression, perhaps because children's cognitive abilities may not enable them to make causal inferences that influence hopelessness in the same way. The proceeding discussion will review the literature in both adults and children, and will discuss a theory that gives an explanation as to why some of the components of the hopelessness theory of depression may not be applicable to the development of childhood depression, raising the question as to whether or not hopelessness theory is a good model for depression in children.

In addition to depression, the relationship between hopelessness theory and anxiety will be examined. Though anxiety is not a component of hopelessness theory, anxiety and depression are highly comorbid, and more often than not, the disorders are studied in conjunction (Mineka, Watson, & Clark, 1998). As such, anxiety will be included in the following review of the literature.

#### *Attributional Style, Anxiety, and Depression in Adults*

The evidence for the relationship between attributional style and depression, at least among adults, has been well documented for almost 20 years (Ahrens, & Haaga, 1993; Fresco, Alloy, & Reilly-Harrington, 2006; Hennberg, Vermilyea, Dodge, Becker, & Barlow, 1987; Priester, & Clum, 1992; Raps, Peterson, Reinhard, Abramson, &

Seligman, 1982; Riskind, Rholes, Brannon, & Burdick, 1987; Seligman, Abramson, Semmel, & von Baeyer, 1979). Numerous studies suggest that attributional style moderates the relationship between negative events and symptoms of depression in adults. That is, adults have a fixed attributional style prior to the occurrence of a negative event and, depending on the type of attributional style, it can put an individual at increased risk of developing depression following any negative event. Research in adults has shown that attributional style is related to both concurrent depressive symptoms and previous depressive episodes (Alloy, Lipman, & Abramson, 1992; Alloy, Just, & Panzarella, 1997; Mongrain & Blackburn, 2005), although these patterns seem to differ depending on whether adults are faced with negative or positive events.

*Negative versus positive events.* Hopelessness theory specifies that a negative inferential style in response to events that are negative is associated with hopelessness. Several studies have examined the importance of the negative event in depressive symptomology. In support of hopelessness theory, Heimberg, Vermilyea, Dodge, Becker and Barlow (1987) demonstrated in their clinical sample that depressed patients along with patients comorbid for depression and anxiety, displayed the internalizing, stable, and global attributional style for negative outcomes. Attributions made for positive outcomes did not differ between the depressed patients, anxious patients, and the healthy controls. However, conflicting results were presented in a later non-clinical study by Ahrens and Haaga (1993) in that the type of event (positive or negative) may have moderated the influence of attributional style on anxious and depressive symptoms. Converse to hopelessness theory, negative event attributional style was associated with anxiety, whereas attributional style following positive events was associated with depression

(Ahrens & Haaga, 1993). Their study, however, did not include participants who were comorbid for anxiety and depression, who would represent the majority of depressed individuals as the two disorders are highly comorbid (Mineka et al., 1998).

Fresco, Alloy, and Reilly-Harrington (2006) then found that participants with comorbid anxiety and depression had the most depressogenic attributional style when compared to participants with either anxiety or depression alone. The tendency to equate both negative events with internal, stable, and global attributions and positive events with external, unstable, and specific attributions was associated with higher levels of depressive symptoms when individuals were confronted with negative life-events (Fresco et al., 2006).

Recently, Sanjuán, Pérez, Rueda, and Ruiz (2008) examined the predictive relationship between attributional style for negative and positive events and positive and negative affect. Attributional style for negative events (specifically, attributing internal, stable and global causes to negative events) predicted negative affect whereas attributional style for both negative and positive events (specifically, attributing external, unstable and specific causes to negative events and internal, stable, and global causes to positive events) predicted positive affect. Interestingly, their study found an interaction effect between attributions for positive and negative events in predicting negative affect. Those with a negative attribution style for positive events (i.e. those who attribute external, unstable, and specific causes to positive events) who attribute internal, stable, and global causes to negative events were most likely to report high negative affect (Sanjuán et al., 2008). Hopelessness Theory posits that individuals exhibiting a negative inferential style for positive events should not be more likely to develop symptoms of

depression than individuals who do not exhibit a negative inferential style for positive events (Abramson et al., 1989). From the studies discussed above, there is evidence that a relationship does exist between positive events, negative inferential styles, and depression but further research is needed as the relationship remains unclear.

*Attributional Style and Depression.* The research has shown that negative attributional style is associated with a higher variability of depressive symptoms in non-depressed individuals and is reflective of previous major depressive episodes (Alloy, Lipman, & Abramson, 1992; Alloy, Just, & Panzarella, 1997; Mongrain & Blackburn, 2005). Furthermore, Mongrain and Blackburn (2005) demonstrated that both attributional style and dysfunctional attitudes contributed more than mood to more previous major depressive episodes in their graduate student sample. Their logistic regression model showed that negative attributional style predicted recurrent depressive episodes more than rumination, sociotropy (need for acceptance and nurturance), and number of previous depressive episodes (Mongrain & Blackburn, 2005).

There is strong evidence for the role of attributional style in both depression and anxiety in adults; however, among children there is a limited amount of research examining this relationship. From the research that does exist, such studies have not shown strong support for the role of attributional style in the development of anxiety and depressive symptoms in children.

#### *Attributional Style, Anxiety, and Depression in Children*

In children, the evidence is mixed as to whether attributional style is associated with and can be used as a good predictor of depressive symptoms (Gibb et al., 2006; Gibb & Alloy, 2006). Turner and Cole (1994) demonstrated that the relationship between

attributional style and depression may develop with maturity. Their study found that the predictive validity of attributional style for depressive symptoms steadily increased across their 4<sup>th</sup>-, 6<sup>th</sup>-, and 8<sup>th</sup>-grade student samples for negative events that were academically and socially related. In addition, attributional style for different scenarios (e.g., academic, social, and athletic) may develop at different rates (Turner & Cole, 1994).

Gibb et al. (2006) examined the factors that contribute to the development of attributional style in children. Across their 4<sup>th</sup>- and 5<sup>th</sup>-grade sample, negative attributional style was found to be predictive of depressive symptoms when the negative events involved verbal victimization. In this case, their explanation for the stability of attributional style in the occurrence of negative events involving verbal victimization was that the causal attribution is being provided to the child by the verbal statements themselves (e.g., a bully might say to their victim, 'Why do you think you get picked on all the time? It's because you ask for it!'). It seems that among children, attributional style may only predict the development of depression in very limited scenarios of negative events (Gibb et al., 2006).

Gibb and Alloy (2006) investigated whether attributional style mediates or moderates the relationship between verbal victimization (a negative life event) and depression. Their longitudinal study followed 448 4<sup>th</sup> and 5<sup>th</sup> grade children over 6 months and suggested that only when age was taken into account did attributional style at the initial assessment moderate the relationship between verbal victimization and the residual change in depressive symptoms 6 months later. Specifically, the moderating effect of attributional style was found in the older 5<sup>th</sup> grade children and not the younger

4<sup>th</sup> grade children suggesting that “attributional style develops over the course childhood” (Gibb & Alloy, 2006, p.271).

Attributional style may mediate the relationship between negative events and depression in young children, whereas during adolescence it shifts to a moderating role (Cole & Turner, 1993; Turner & Cole, 1994). As a mediator, the variations in the circumstances of the negative event account for the variations in the types of attributions generated, leading to variations in the individual’s attributional style. However, when attributional style acts as a moderator, the individual possesses their own fixed attributional style prior to any negative event occurring, such that the attributional style puts them at either higher or lower risk of developing hopelessness in the face of a negative event. The change from a mediator to a moderator may be accounted for by both experience and cognitive development. In terms of experience, as children age they acquire a larger repertoire of memories involving undesirable events and their inferred causes. Children can then begin to identify patterns and make comparisons between their current experience and those from their past, and eventually develop a schema as to how to infer the cause of an undesirable event. This would become their attributional style, a stable inferential style that moderates the relationship between negative events and hopelessness.

The research appears to demonstrate that children do not possess an attributional style that is not fixed as is observed in adults, which may be due to their immature cognitive abilities in abstract reasoning (Abela, 2001). Inferences about the cause of a negative event are only one of the three types of inferences that can be made, according to hopelessness theory. There may be better predictors of hopelessness depression in

children such as the second type of negative event evaluation, inferences about the consequence of an event, and one's degree of catastrophizing.

*Catastrophizing, Anxiety, and Depression in Adults*

Several studies have documented the relationship between catastrophizing and anxiety in adults. In anxiety, individuals with maladaptive schema that cause them to develop distorted expectations about the progression of potential threats are at increased risk of anxiety (a condition characterized by a persistent and excessive state of worry), worrying (having excessive future-oriented concerns), and catastrophizing (inferring the consequences of a negative event as being catastrophic) (Riskind, Williams, Gessner, Chrosniak, & Cortina, 2000).

Vasey and Borkovec (1992) found that individuals who worry generate longer catastrophizing chains than non-worrying individuals, and, in the process of catastrophizing, worriers experience distress whereas non-worriers do not. As their study involved a recall task of potential catastrophic outcomes of a negative event, Vasey and Borkovec (1992) suggested that the difference in the length of the catastrophizing chain between worriers and non-worriers may represent a memory bias. Worriers have more of the catastrophizing cognitions readily available, since they more frequently engage in this behaviour, thus enabling them to catastrophize to a greater degree than non-worriers (Vasey & Borkovec, 1992).

At a clinical level, a study by Hazlett-Stevens and Craske (2003) compared adults diagnosed with Generalized Anxiety Disorder (GAD) and non-anxious participants in their catastrophizing worry process. GAD participants produced significantly longer catastrophizing chains than the non-anxious group. The GAD participants also exhibited

higher levels of depressive symptomology and negative mood than the non-anxious participants, following their catastrophizing interview. These results follow from those found by Vasey and Borkovec (1992): catastrophizing or generating catastrophic inferences induces some sort of distress and lowered mood in anxious individuals.

Furthermore, depressive symptoms have been shown to be positively correlated with both hopelessness and catastrophizing thought processes (Ghahramanlou-Holloway, Wenzel, Lou, & Beck, 2008). Ghahramanlou-Holloway and colleagues (2008) investigated whether cognitive content can differentiate depressed and anxious individuals. Catastrophizing was as positively correlated with anxiety symptoms as it was with depressed symptoms. The positive correlation between depression and catastrophizing may be as a result of high comorbidity between depression and anxiety. Nonetheless, these results still demonstrate that individuals presenting with depressive symptomology can exhibit catastrophizing thought processes. The research seems to suggest that the relationship between catastrophizing and depression may involve anxiety in some respect. Catastrophizing while excessively worrying (worrying being a symptom associated with anxiety) seems to result in some degree of distress and may be related to low mood and depressive symptomology.

#### *Catastrophizing, Anxiety, and Depression in Children*

Currently there are few studies that have looked directly at the role of the second type of inference, inferences of the consequence of an event, in the relationship between a negative event and symptoms of depression in children (Abela, 2001; Hankin & Abramson, 2002; Weems, Berman, Silverman, & Saavedra, 2001). Just as is observed in adults, in children, anxiety and catastrophizing are significantly correlated, such that

children with increased anxious symptoms catastrophize more than those with fewer symptoms (Watts & Weems, 2006). Watts and Weems (2006) noted a significant difference in catastrophizing between children and adolescents. Although the authors never speculated as to why, they found that their sample of children between ages 9 and 12 made more catastrophic inferences than their sample of adolescents between the ages of 13 and 17 (Watts & Weems, 2006).

The relationship between catastrophizing the consequences of a negative event and the development or maintenance of depression in children has not been well established in the literature. One study by Weems and colleagues (2001) evaluated the relationship between cognitive errors and anxiety in a clinical sample of children between the ages of 6 and 17 years who met diagnostic criteria for an anxiety disorder. Catastrophizing and personalizing cognitive errors were the strongest predictors of anxious symptoms while overgeneralizing and selective abstraction were the strongest for depressive symptoms. Though the authors did not state the variance in depression scores accounted for by catastrophizing, they did note that when controlling for anxiety, catastrophizing was significantly correlated with scores from the Children's Depression Inventory (CDI) ( $r=.22, p<.01$ ) (Weems et al., 2001). Attention should be drawn to the correlation, for even though the correlation is significant at the  $p<.01$ , the correlation itself is low. Not only may the correlation be low, but it has been suggested that the CDI is a scale measuring negative affectivity rather than depression (Stark & Laurent, 2001). On the other hand, negative affectivity does underlie both anxiety and depression, and so the low correlation between the CDI scores and catastrophizing is still suggestive of a relationship between catastrophizing and depression.

Adolescents who catastrophize have been shown to exhibit elevated levels of depression (Hankin & Abramson, 2002). Hankin and Abramson (2002) demonstrated a predictive relationship between catastrophizing and depression in their adolescent sample. Although this finding was reported in their study, Hankin and Abramson (2002) did not use an independent measure of anxiety. As studies have demonstrated a relationship between anxiety and depression and anxiety and catastrophizing, anxiety could have accounted for the relationship between catastrophizing and depression.

Abela (2001) expanded this area to younger children as he assessed depressive symptoms and inferential style in third- and seventh- grade children at an initial assessment and then six weeks following. At the six week assessment, Abela (2001) also measured the number of negative or stressful life events experienced by the participants during the preceding week. Initial depression scores and the number of negative or stressful life events did significantly predict depression scores six weeks later. The addition of catastrophizing scores did not result in a significant increase in the variance accounted for in depression scores; rather the addition of the interaction between catastrophizing and the number of negative life events did account for a significant increase in the variance accounted for in depression scores in both third- and seventh-graders. Only when a negative life event occurs does the child's inferential style about the consequence of a negative event put them at risk for developing depressive episodes. In addition, third-graders were found to perceive a negative event as having disastrous consequences more often than seventh-graders, suggesting that younger children engage in the catastrophizing thought process more often than older children (Abela, 2001). These results do lend support to the diathesis-stress model of hopelessness theory in that a

stressor or negative event is necessary for one's inferential style to influence their risk for developing depression.

Abela (2001) proposed that children's ability to form inferences about consequences and self may emerge before the ability to form causal inferences. Inferences about consequences and the self may develop earlier because the environment can provide overt feedback to the child as to the kind of inference they should make (Abela, 2001). For example, individuals are given evaluations to determine how well they know or understand information. When young children do well on an evaluation they are often given praise addressing their intelligence, such as "you are so smart!" In the scenario of failing an exam, the overt feedback would be the lack of praise from others regarding the child's intelligence. Therefore having failed an exam may lead the child to infer that they are not smart. In terms of the consequences, the direct consequences of any event are eventually revealed with time. As well the child can use the distinct features of a scenario to recall similar past experiences which would guide them in inferring the consequences of the given scenario. Meanwhile concrete evidence as to the cause of any event is rarely if ever available. Abela (2001) hypothesized making inferences of the consequence and self requires less abstract reasoning, and would thus emerge before the ability to form causal attributions (Abela, 2001). The research suggests that due to cognitive immaturities in children, their ability to infer the cause of an event may not emerge until adolescence. Their immature cognitive abilities in abstract reasoning could explain why attributional style is not a strong predictor of depressive symptoms in children.

Of these three types of inferences, inferences of cause, consequence, and the self, one may be a stronger predictor of depressive symptomology in children than the others. For example, inferences made of the consequences of a negative event may be a stronger predictor of depressive symptoms in children than causal inferences, due to children's limited abstract reasoning abilities, whereas inferences made of the cause of a negative event may be a stronger predictor of depressive symptoms in adults. The utility of prediction is in prevention. If a predictive relationship is observed between inferring catastrophic consequences and depressive symptoms in children, it would provide additional direction to the development of intervention and prevention programs by providing support for targeting the pessimistic ways children may interpret the daily events in their lives. The purpose of this investigation is to increase our understanding of some of the factors that may contribute to the development of depression in children by determining if catastrophizing the consequences of a negative event can predict concurrent depressive symptoms in children.

Catastrophizing has not been studied specifically as an incrementing factor in the likelihood of an individual exhibiting concurrent depressive symptoms, which has been studied in depth between attributional style and depression. Secondly, since the predictive nature of attributional style in depressive symptomology varies with age, this study will investigate whether age is also a factor influencing the predictive nature of catastrophizing on concurrent depressive symptoms. As no interaction effects were found between grade, catastrophizing, and negative events in predicting hopelessness depression, earlier studies have collapsed samples of children in grades 3 and 7 (Payne & Abela, 2003), and grades 3 through 6 (Brosina & Abela, 2006). In these collapsed

samples, hopelessness depression and catastrophizing were significantly correlated yet these studies did not provide correlation tables for each grade. In Abela and Sarin's (2002) study, their seventh- grade sample did not show significant correlations between hopelessness depression and catastrophizing, and the interaction between catastrophizing and negative events did not predict hopelessness depression in this age group. Payne and Abela (2003), who collapsed their grade 3 and 7 sample in their analyses, had reported significant differences in catastrophizing between the two groups. The lack of relationship between catastrophizing and depression may be present only at a younger age but it is unknown as previous studies have collapsed participants across grades 3 through 7. This study's examination of catastrophizing and depression will differ from earlier studies conducted by Abela in that the relationship between catastrophizing and depression will be examined at three independent intervals during childhood. Although, Weems and colleagues (2001) found a relationship between catastrophizing and depression independent of anxiety (which was not the main focus of their study) in their combined child and adolescent clinically anxious sample, this study will examine this relationship in a non-clinical context, within third-, fifth-, and seventh-grade children, and using different measures of depression and catastrophizing.

Some studies demonstrating a relationship between catastrophizing and depression have not controlled for anxiety (e.g., Abela, 2001, Hankin & Abramson, 2002, Gharhramanlou-Holloway et al., 2008). In the present study, it is predicted, after controlling for anxiety, that catastrophizing will be a significant predictor of depressive symptoms in both younger and older participants. Previous studies have noted a trend that older participants catastrophize less frequently than younger participants; some studies

have found this difference to be significant (e.g., Watts & Weems, 2006) while others have not (e.g. Abela, 2001). Yet the trend appears to be that younger children catastrophize negative events more than older children. This trend suggests there may be an interaction between age and catastrophizing. In this study, it is predicted that the relationship between catastrophizing and depression will be moderated by age. Earlier studies have demonstrated a relationship between catastrophizing and depression and catastrophizing and anxiety, some studies controlling for the other mood disorder while others not. If it is found that catastrophizing accounts for unique variance in both anxiety and depression, then it should follow that the relationship between catastrophizing and depression should be strong in children with elevated symptoms of both anxiety and depression. Therefore, in the present study, it is predicted that there will be a trend suggesting that catastrophizing is a stronger predictor of depressive symptoms in children who exhibit elevated levels of anxious and depressive symptoms than those who do not exhibit this combination of symptoms.

## Method

### *Participants*

A letter describing the study was sent to the principal of 35 schools in the Eastern School District in Newfoundland. Ten schools in Mount Pearl and St. John's Newfoundland (7 elementary and 3 junior high) agreed to take part in the study. A letter and consent form addressed to parents describing the purpose of the study, data collection, and risks and benefits to participating was sent home with third-, fifth-, and seventh- grade children. Only children whose parents provided consent participated in the study. Consent rates at each school ranged from 2% to 25%.

The final sample consisted of 69 third-grade participants (40 girls and 29 boys), 53 fifth-grade participants (41 girls and 12 boys), and 36 seventh-grade participants (20 girls and 16 boys) yielding a total sample of 158 participants (101 girls and 57 boys). Grade three participants ranged in age from 8 years and 3 months to 9 years and 8 months with a mean age of 8 years and 10 months ( $SD = 3.69$  months). Grade five participants ranged in age from 10 years and 4 months to 11 years and 10 months with a mean age of 10 years and 11 months ( $SD = 3.99$  months). Grade seven participants ranged in age from 12 years and 6 months to 13 years and 4 months with a mean age of 12 years 10 months ( $SD = 3.03$  months). The sample was 94.3% ( $n=149$ ) White, 3.8% ( $n=6$ ) mixed, 0.6% ( $n=1$ ) Black, and 0.6% ( $n=1$ ) Native. One participant did not indicate their ethnic group.

### *Measures*

The study concurrently measured catastrophizing, anxiety, and depression among the sample of school-aged children. Five questionnaires were used to measure these independent constructs.

*Demographic Information Sheet.* The demographic information sheet (see Appendix A) consisted of a series of questions regarding the participant's age, gender, living situation, number of brothers and sisters, ethnicity, and mother's and father's line of work (an assessment of socioeconomic status). The demographic information sheet appeared at the front of every package following the assent form.

*Children's Cognitive Style Questionnaire (CCSQ; Abela, 2001).* The CCSQ is a questionnaire designed to measure catastrophizing (Part I) and the tendency to make negative inferences about the self (Part II) following a negative event. Part II, measuring inferences about the self, was not used in this study. In Part I (see Appendix B),

catastrophizing was measured by 12 items. Each of the 12 items describe a negative event to which the child is given four response options: (i) This won't cause other bad things to happen to me; (ii) This might cause other bad things to happen to me; (iii) This will cause other bad things to happen to me; and (iv) This will cause many terrible things to happen to me. Response scores range from 0 to 3 leading to total scores for the catastrophizing cognitive error to range from 0 to 36. A greater inclination to catastrophize the consequences of a negative event are indicated by higher scores.

Moderate coefficient alphas have been obtained for the catastrophizing scale in third- and seventh- grade children (ranging from .66 to .81) (Abela, 2001; Abela & Payne, 2003; Brozina & Abela, 2006). As the current study is measuring catastrophizing and not self-appraisal, only Part I of the CCSQ, which measures catastrophizing (CCSQ-CAT), was administered.

*Children's Depression Inventory (CDI; Kovacs, 1980, 1981).* The CDI is a 27-item self-report questionnaire designed to measure the cognitive, behavioural, and affective symptoms of depression in children aged 7 to 17 years. The CDI, a self-report questionnaire, extends from the Beck Depression Inventory for adults such that modifications have been made in the item-format to enhance item comprehension for children. Each item consists of three statements that vary in degree of severity of symptoms. The assigned numerical values for the grades of severity range from 0 to 2, where higher values represent more severe symptoms. The child is instructed to choose the statement which best describes the way he or she has felt over the preceding two weeks. Total scores range from 0 to 54, where higher scores indicate higher depressive

symptomology. Strong reliability coefficients have been shown ranging from .83 to .89 (Smucker, Craighead, Wilcoxon, Craighead, & Green, 1986).

Though studies have suggested that the CDI has low discriminant validity between symptoms of anxiety and symptoms of depression, and may simply be measuring negative affectivity (e.g., Chorpita, Albano, & Barlow, 1998; Stark & Laurent, 2001), this study used the instrument for comparison purposes with previous studies (the majority having used the CDI as a measure of depressive symptomology).

The CDI was not administered in its entirety; rather 9 of the 27 items comprising a hopelessness depression scale (see Appendix C) were administered. The items that comprised the hopelessness depression scale represent the symptoms associated with hopelessness depression and were compiled to form a hopelessness depression composite score. This composite score, as described and used by Abela and Payne (2003) measures motivational deficits (items 13, and 15), sadness (items 1, and 10), lack of energy (item 16), sleep disturbances (item 17) and dependency (items 20, 22, and 25). Moderate coefficient alphas have been found ranging from .67 to .72 (Abela & Payne, 2003).

*Center for Epidemiological Studies Depression Scale for Children (CES-DC; Weissman, Orvaschell, Padian, 1980).* The CES-DC (see Appendix D) is a 20-item self-report questionnaire measuring depressive symptoms in children aged 8 – 17 years old. The items measure the frequency of depressive symptoms over the previous week on a 4-point scale ranging from 0 (*not at all*) to 4 (*a lot*). Total scores range from 0 to 60 where higher scores indicate higher levels of depression. Faulstich (1986) reported good internal consistency in a sample of children ranging in age from 8 – 17 years with a coefficient

alpha of .83. The CES-DC was shown to be moderately correlated with the CDI at  $r = .44$  (Faulstich, 1986).

The CES-DC was used as an additional measure of depression because it has been demonstrated that the Children's Depression Inventory may not be measuring depressive symptomology but rather negative affectivity (e.g., Chorpita et al., 1998; Stark & Laurent, 2001).

*Children's Negative Cognitive Error Questionnaire (CNCEQ; Leitenberg, Yost & Carroll-Wilson, 1986).* The CNCEQ (see Appendix E) is a 24-item self-report questionnaire measuring four types of negative cognitive errors: catastrophizing, overgeneralizing, personalizing, and selective abstraction. The scale is divided into three content areas: academic, social, and athletic. Each of the four cognitive errors is represented by 6-items. Each of the four sets of 6-items is comprised of three sets of 2 items each, representing the three content areas. The items are rated on a 5-point scale ranging from 1 (not at all like I would think) to 5 (almost exactly like I would think). Total scores range from 24 to 120; subscale scores for each cognitive error range from 6 to 30; content area scores range from 8 to 40. Higher scores indicate higher levels of negative cognitive errors. The present study only used the CNCEQ catastrophizing subscale (CNCEQ-CAT), and this scale was a measure of catastrophizing.

Normative data were gathered on this questionnaire using a sample of children from grades 4, 6, and 8. The normative sample was of mixed socio-economic status and the majority of participants were Caucasian. Leitenberg and colleagues (1986) reported a test-retest reliability estimate for the total score of .65 ( $p < .001$ ). Similarly, test-retest reliability estimates for each of the cognitive error types were reported to range from .44

to .58 ( $p < .001$ ; Leitenberg et al., 1986). Internal consistency was reported to range from .60 to .71 among the four cognitive errors (Leitenberg et al., 1986). Watts and Weems (2006) reported a slightly higher internal consistency for the catastrophizing, overgeneralizing, personalizing, and selective abstraction subscales:  $r = .73$ ;  $r = .76$ ;  $r = .77$ ;  $r = .59$ , respectively.

*Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000).* The RCADS (see Appendix F) is a 47-item self-report questionnaire that measures the symptoms of anxiety and depression in children. The scale contains six subscales that correspond to six DSM-IV disorders: Separation Anxiety Disorder (SAD), Social Phobia (SP), Generalized Anxiety Disorder (GAD), Panic Disorder (PD), Obsessive Compulsive Disorder (OCD), and Major depressive disorder (MDD). Children are instructed to rate how often each item applies to them on a scale from 0 to 3 (0 – Never, 1 – Sometimes, 2 – Often, 3 – Always). Total scores range from 0 to 141 where high scores indicate higher levels of anxious and depressive symptoms. The reliability coefficients on each subscale obtained from a normative school sample are moderate and range from .71 to .85 and test-retest coefficients range from .69 to .80 (Chorpita et al., 2000). Internal consistencies for subscales measured using clinical samples range from .78 to .88 (Chorpita, Moffitt, & Gray, 2005). The Major depressive disorder subscale correlates with the CDI with  $r = .70$  (Chorpita et al., 2000). The test – retest correlations between the RCADS subscales and the Revised Children’s Manifest Anxiety Scale (RCMAS) subscales are moderate and range from .49 to .68 (Chorpita et al., 2000).

The RCADS was used as an additional measure of depression because it has been demonstrated that the Children's Depression Inventory may not be measuring depressive symptomology but rather negative affectivity (e.g., Chorpita et al., 1998; Stark & Laurent, 2001). Negative affectivity is a component of depressive symptomology but the use of an additional instrument measuring depression is needed to determine a clear association between catastrophizing and depression. As well, the study used a composite score of the anxiety scales (i.e. the generalized anxiety disorder scale, obsessive compulsive scale, panic disorder scale, separation anxiety scale, and social anxiety scale) to measure symptoms of anxiety. The RCADS depression scale was used in addition to the CES-DC as the reliability of the CES-DC, though good in older children, is questionable in young children.

#### *Procedure*

For the third- grade participants, administration of the questionnaires took place over two days in 30 minute sessions. For the fifth-grade and seventh-grade participants, administration of the questionnaires took place in one 30 minute session. A brief 2-3 minute presentation (introducing the investigator, the premise of the study, and giving instructions for completion of the questionnaires) was given before the distribution of the assent form and questionnaires.

Questionnaire packages for third grade participants consisted of an assent form, a demographic information sheet, the CCSQ, the CDI, the CES-DC, the CNCEQ, and the RCADS. The questionnaire packages were numbered to ensure the anonymity of the participants. The questionnaire packages were counterbalanced according to Latin Squares design across third-grade participant groups but not within participant groups as

the questionnaires were administered orally to each group. The questionnaires were divided into two parts. The first part contained two questionnaires and the demographic information sheet, and the second contained the remaining three questionnaires. Part 1 was administered on day 1 and part 2 on day 2. The two parts of the questionnaire package were labelled with the same participant number. A removable sticker with the participant's name was affixed to each part of the questionnaire package.

The assent form outlining the details of the study was at the front part of the first package administered on the first day. The participants were asked to print their name (write their name in printing) and to sign the form (write their name in cursive) if they were interested in taking part. Participants who did not wish to participate in the study would leave the administration session at this point. Participants were made aware that they could seek clarification regarding instructions given or problems with a questionnaire for example, at any time during the session. Participants who experienced any difficulties were given individual attention by a research assistant.

After the first part of the questionnaire package had been completed, the third-grade participants were instructed to peel off the sticker on which their name was written and throw it away. At this point the research assistant(s) collected part I, which was now only identifiable by the participant number. From this point on, there was no link between participant name and participant number. The same procedure was carried out in the second session for the third-grade participants. Once Part II had been completed the third-grade participants were instructed to peel off the sticker on which their name was written and throw it away. Following the administration session, Part I and Part II were matched using the participant number.

Questionnaire packages for the fifth- and seventh-grade participants were identical to those for the third-grade participants, which consisted of an assent form, a demographic information sheet, the CCSQ, the CDI, the CES-DC, the CNCEQ, and the RCADS. The questionnaires within each package were counterbalanced according to Latin squares design (Williams, 1949), and the questionnaire packages were numbered to ensure the anonymity of the participants. The fifth- and seventh-grade participants read their questionnaires to themselves and completed the five questionnaires and the demographic information form in one sitting. Time to complete the questionnaires ranged from 15 to 40 minutes.

The study was granted ethics approval by the Human Investigation Committee (see Appendix G) and the Eastern School District (see Appendix H).

### Results

The following analyses were planned analyses, as such, no correction for Type I error was made (Scheirs, 1992).

#### *Demographic Differences*

Preliminary analyses were conducted to determine whether gender and the child's living situation were related to catastrophizing, depression, and anxiety. An independent samples *t*-test was conducted between boys and girls to test differences in mean scores on the CCSQ-CAT, the CNCEQ-CAT, the CES-DC, the CDI hopelessness depression scale, the RCADS major depressive disorder (MDD) scale, and the RCADS anxiety composite score (see Table 1). There were no significant differences between boys and girls in mean scores on the catastrophizing scales or the depression scales; however girls did score significantly higher on the anxiety composite score than boys ( $t(156) = 2.10, p = .04$ ). As

anxiety was not the primary variable in this study, analyses were conducted with the sample as a whole.

Table 1

*Means and Standard deviations for the CCSQ catastrophizing scale, the CDI hopelessness depression scale, the CES-DC, the CNCEQ catastrophizing subscale, the RCADS anxiety composite, and the RCADS MDD subscale for boys and girls*

Measure	Boys	Girls
	Mean (SD)	Mean (SD)
CCSQ_CAT	10.40 (4.96)	10.76 (5.42)
CDI	2.79 (2.79)	2.49 (2.49)
CES-DC	13.19 (9.03)	13.49 (9.44)
CNCEQ_CAT	50.05 (21.39)	51.80 (15.23)
RCADS-ANX	24.54 (15.25)*	29.45 (13.44)*
RCADS-MDD	6.58 (4.90)	6.93 (4.44)

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-ANX = RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\* $p < .05$

One-way analyses of variance (ANOVAs) were conducted to determine whether there were significant between group differences dependent on the child's living situation (child spends most time with the mother, the father, neither, both parents who live

together, both parents who do not live together). No significant group differences were found on the catastrophizing scales, the depression scales, or the anxiety scale (see Table 2). These results suggest that any findings from analyses used to address the hypotheses in this study will be independent of gender and the child's living situation.

Table 2

*Analysis of Variance – Between Group differences for Child's Living Situation on the CCSQ catastrophizing scale, the CDI hopelessness depression scale, the CES-DC, the CNCEQ catastrophizing subscale, the RCADS anxiety composite, and the RCADS MDD subscale*

Measure	Group	Mean	Standard Deviation	F-ratio	P-value
CCSQ_CAT	Mostly with mother	9.72	3.48	.79	.54
	Mostly with father	9.00	6.56		
	Father and Mother Together	10.67	5.61		
	Father and Mother Separately	12.62	4.43		
	Neither	8.00	-		
	Total	10.63	5.24		
	CDI	Mostly with mother	2.52		
	Mostly with father	3.33	1.52		
	Father and Mother Together	2.45	2.60		

	Father and Mother Separately	3.92	3.17		
	Neither	3.00	-		
Total		2.60	2.60		
CES-DC	Mostly with mother	13.76	8.55	.89	.47
	Mostly with father	13.67	4.73		
	Father and Mother Together	13.38	9.27		
	Father and Mother Separately	17.46	9.00		
	Neither	20.00	-		
Total		13.38	9.27		
CNCEQ_CAT	Mostly with mother	13.76	4.65	1.33	.26
	Mostly with father	10.00	3.61		
	Father and Mother Together	12.54	5.12		
	Father and Mother Separately	12.62	6.09		
	Neither	22.00	-		
Total		12.75	5.14		
RCADS-ANX	Mostly with mother	30.52	11.20	1.46	.22
	Mostly with father	24.33	5.86		

	Father and Mother Together	26.32	14.66		
	Father and Mother Separately	35.16	15.82		
	Neither	27.00	-		
	Total	27.68	14.27		
RCADS-MDD	Mostly with mother	8.60	4.52	1.52	.20
	Mostly with father	5.33	1.15		
	Father and Mother Together	6.35	4.69		
	Father and Mother Separately	7.46	3.82		
	Neither	10.00	-		
	Total	6.80	4.60		

*Congruency of the Depression Scales and the Catastrophizing Scales*

In advance of conducting analyses addressing the hypotheses of this study, bivariate correlations were conducted across the full sample and within each grade to determine whether the depression scales were correlated, and whether the catastrophizing scales were correlated (see Table 3).

Table 3

*Correlational analyses across the full sample, and third-, fifth-, and seventh- grade children*

Measure	RCADS-MDD	CDI	CES-DC	CCSQ_CAT	CNCEQ_CAT
<b>Full Sample</b>					
CDI	.65*				
CES-DC	.68*	.70*			
CCSQ_CAT	.27*	.26*	.32*		
CNCEQ_CAT	.39*	.34*	.37*	.32*	
ANX	.62*	.43*	.58*	.37*	.41*
<b>Grade 3</b>					
CDI	.56*				
CES-DC	.58*	.57*			
CCSQ_CAT	.29*	.35*	.37*		
CNCEQ_CAT	.39*	.38*	.44*	.24*	
ANX	.58*	.34*	.54*	.33*	.39*
<b>Grade 5</b>					
CDI	.76*				
CES-DC	.79*	.72*			
CCSQ_CAT	.43*	.23*	.33*		
CNCEQ_CAT	.47*	.48*	.33*	.36*	
ANX	.52*	.39*	.53*	.46*	.40*

Grade 7					
CDI	.73*				
CES-DC	.74*	.82*			
CCSQ_CAT	.23	.22	.36*		
CNCEQ_CAT	.40*	.17	.42*	.57*	
ANX	.76*	.65*	.72*	.46*	.51*

*Note.* Pearson correlations; CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; ANX=RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\* $p < .05$

Moderate correlations were found in the full sample between the CES-DC and the CDI hopelessness depression scale ( $r = .70, p < .01$ ), the CES-DC and the RCADS MDD subscale ( $r = .68, p < .01$ ), and the RCADS MDD subscale and the CDI hopelessness depression scale ( $r = .65, p < .01$ ). A similar pattern of correlations between the depression scales was found within each grade; however, overall correlations between the depression scales were higher in the fifth-grade ( $r = .72 - .79$ ) and seventh-grade samples ( $r = .73 - .82$ ) as compared to the full sample ( $r = .65-.70$ ), and were lower in the third-grade sample ( $r = .56-.58$ ) as compared to the full sample.

A significant but lower than expected correlation was found between the CCSQ-CAT and the CNCEQ-CAT in the full sample ( $r = .32, p < .01$ ), third-grade sample ( $r = .24,$

$p < .01$ ), and fifth-grade sample ( $r = .36, p < .01$ ); however, a much higher, yet still lower than expected correlation was observed in the seventh-grade sample ( $r = .57, p < .01$ ).

It has been theorized that anxiety and depression are highly correlated in children. As such, bivariate correlations were conducted to determine whether the depression scales and the anxiety scale were operating within this framework (see Table 3). Consistent with theory, significant correlations in the full sample were found between the CES-DC and the RCADS anxiety composite score ( $r = .58, p < .01$ ), the CDI hopelessness depression scale and the RCADS anxiety composite score ( $r = .43, p < .01$ ), and the RCADS MDD scale and RCADS anxiety composite score ( $r = .62, p < .01$ ). This pattern of results was reflected within each grade: the third-grade ( $r = .34 - .58$ ) and fifth-grade ( $r = .39 - .53$ ) samples demonstrating similar correlations to the full sample and the seventh-grade sample showing a similar pattern but higher correlations between the depression scales and the anxiety composite score ( $r = .65 - .76$ ) as compared to the full sample ( $r = .43 - .62$ ). These results indicate that as expected, depression scales were correlated with one another as well as with the anxiety composite score. As such, the three depression scales were used in the analyses addressing the aims of this study. The congruency between the catastrophizing scales was satisfactory for use in the analyses addressing the aims of this study; however, in assessing the predictive relationship between catastrophizing and depression using regression analysis, the two catastrophizing scales were used separately.

Tests of internal consistency were conducted for the catastrophizing scales, the depression scales, and the RCADS composite scale, in the full sample and within each grade level (See Table 4). Across the full sample a high internal consistency was found

for the RCADS anxiety composite scale ( $\alpha=.91$ ); moderate internal consistencies were found for the CES-DC ( $\alpha=.87$ ), the RCADS-MDD subscale ( $\alpha=.79$ ), the CCSQ-CAT ( $\alpha=.76$ ), and the CNCEQ-CAT ( $\alpha=.76$ ). Internal consistencies greater than  $\alpha=.70$ , are generally considered acceptable, however if a scale is comprised of fewer than 20 – items, the acceptable lower bound may be decreased to  $\alpha=.60$  (Nunnally, 1967; Dekovic, Janssens, & Gerris, 1991; Holden, Fekken, & Cotton, 1991). The CDI hopelessness depression scale, which is comprised of nine items, exhibited a low but acceptable internal consistency ( $\alpha=.61$ ). Within each grade moderate and high internal consistencies were found for the CES-DC ( $\alpha=.81 - .94$ ) and the RCADS anxiety composite scale ( $\alpha=.90 - .91$ ). Low to moderate internal consistencies within each grade were found for the CCSQ-CAT ( $\alpha=.61 - .79$ ) and the RCADS-MDD subscale ( $\alpha=.61 - .91$ ). Moderate internal consistencies were found for the CDI hopelessness depression scale in the fifth-grade and seventh-grade samples ( $\alpha=.73$ ,  $\alpha=.72$ , respectively), and the CNCEQ-CAT in the third- and fifth-grade samples ( $\alpha=.84$ ,  $\alpha=.64$ , respectively); however, very low internal consistencies were found in the third-grade sample for the CDI hopelessness depression scale ( $\alpha=.36$ ) and in the seventh-grade sample for the CNCEQ-CAT ( $\alpha=.46$ ). Results from the third-grade sample using the CDI hopelessness depression scale and the seventh-grade sample using the CNCEQ-CAT need be interpreted with extreme caution as these instruments were not reliable in their respective sample.

#### Table 4

*Internal Consistencies and Means (M) and Standard Deviations (SD) for the CCSQ-CAT, CNCEQ-CAT, CDI hopelessness depression scale, CES-DC, RCADS-MDD, and RCADS-ANX*

Grade	CCSQ- CAT	CNCEQ- CAT	CDI	CES-DC	RCADS- MDD	RCADS- ANX
Full Sample	.76	.76	.61	.87	.79	.91
M	10.63	12.75	2.60	13.38	6.80	27.68
(SD)	(5.24)	(5.14)	(2.60)	(9.27)	(4.60)	(14.27)
Grade 3	.79	.84	.36	.81	.61	.90
M	10.51	13.39	2.61	13.87	8.28	29.86
(SD)	(5.7)	(6.16)	(2.23)	(8.18)	(4.21)	(14.58)
Grade 5	.79	.64	.73	.84	.76	.91
M	11.57	12.89	2.40	12.17	5.15	25.42
(SD)	(5.40)	(4.53)	(2.72)	(9.00)	(3.88)	(13.78)
Grade 7	.61	.46	.72	.94	.91	.91
M	9.50	11.33	2.89	14.22	6.42	26.83
(SD)	(3.72)	(3.38)	(3.08)	(11.47)	(5.43)	(14.15)

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-ANX=RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

#### *Catastrophizing and Depression*

The purpose of this study was to determine whether catastrophizing the consequences of a negative event predicts concurrent depressive symptoms in children. It was hypothesized that catastrophizing would be a significant predictor of depressive

symptoms in both younger and older children. To ascertain that a relationship exists between the catastrophizing and depression, the depression scales and the catastrophizing scales were correlated in the full sample and within the third-, fifth-, and seventh-grade samples (see Table 3).

Consistent with previous findings, the depression scales were significantly and positively correlated with the catastrophizing scales in the third- and fifth-grade samples ( $r = .29 - .44$ ;  $r = .23 - .48$ ,  $p < .05$ , respectively). As expected the results indicate that a relationship does exist between the catastrophizing scales and the depression scales in younger participants. In the seventh-grade sample, consistent with Abela and Sarin (2002), a non-significant correlation was found between the CCSQ-CAT and the CDI hopelessness depression scale; however, the CES-DC was significantly and positively correlated with catastrophizing as measured by the CCSQ-CAT ( $r = .36$ ,  $p < .05$ ). With respect to the CNCEQ-CAT, in the seventh- grade sample, the CES-DC and the RCADS MDD subscale were significantly and positively correlated with catastrophizing ( $r = .42$ ,  $p < .05$ ;  $r = .40$ ,  $p < .05$ , respectively). Contrary to that which is posited by hopelessness theory, the hopelessness depression scale of the CDI was not significantly correlated with either catastrophizing scale in the seventh-grade sample (CCSQ-CAT:  $r = .22$ ,  $p > .05$ ; CNCEQ-CAT:  $r = .17$ ,  $p > .05$ ).

In this study the anxiety scale was found to be significantly correlated with the depression scales, as previously mentioned, as well as with the catastrophizing scales. Significant correlations were found between the CNCEQ-CAT and the RCADS anxiety composite score ( $r = .41$ ,  $p < .05$ ), and the CCSQ-CAT and the RCADS anxiety composite score ( $r = .37$ ,  $p < .05$ ) in the full sample. To rule out anxiety as accounting for the

correlational relationship between the depression scales and the catastrophizing scales, semi-partial correlations were conducted between the depression scales and the catastrophizing scales (see Table 5), controlling for anxiety scores.

Table 5

*Semi - Partial Correlations between the catastrophizing scales and the depression scales*

Measure	CDI	CES-DC	RCADS-MDD
Full Sample			
CCSQ_CAT	.01	.11	.05
CNCEQ_CAT	.18*	.14*	.15*
Grade 3			
CCSQ_CAT	.26*	.20	.11
CNCEQ_CAT	.27*	.25*	.17
Grade 5			
CCSQ_CAT	.06	.09	.22
CNCEQ_CAT	.36*	.13	.29*
Grade 7			
CCSQ_CAT	-.08	.04	-.13
CNCEQ_CAT	-.19	.06	.02

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-ANX=RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\* $p < .05$

Significant correlations in the full sample were found between the CNCEQ-CAT and the CDI hopelessness depression scale ( $r = .18, p < .05$ ), the CES-DC ( $r = .14, p < .05$ ), and the RCADS MDD subscale ( $r = .15, p < .05$ ). Unexpectedly, the CCSQ-CAT was no longer significantly correlated with any of the depression scales after the RCADS anxiety composite score was controlled for in the full sample.

When examined by grade, the CCSQ-CAT was significantly correlated with the CDI hopelessness depression scale after controlling for the anxiety composite score in the third-grade sample ( $r = .26, p < .05$ ). The CNCEQ-CAT was also correlated with the CDI hopelessness depression scale ( $r = .27, p < .05$ ) and additionally the CES-DC ( $r = .25, p < .05$ ) in the third-grade sample. In the fifth-grade sample the CNCEQ-CAT maintained a significant correlation with the CDI hopelessness subscale ( $r = .36, p < .05$ ) and the RCADS MDD subscale ( $r = .29, p < .05$ ). No significant correlations were found in the seventh-grade sample between any of the catastrophizing and depression scales after controlling for anxiety. These results suggest that, in the present sample, neither catastrophizing scale accounted for a significant amount of unique variance in the seventh- grade sample using any measure of depression, and the CCSQ-CAT consistently failed to account for unique variance in the depression scales, except in the third-grade sample with the CDI hopelessness depression scale. Catastrophizing as measured by the CNCEQ-CAT did account for unique variance in the depression scales; this result suggests that there may be a relationship between catastrophizing as specifically measured by the CNCEQ-CAT and depression when controlling for anxiety. Since a relationship between the catastrophizing scales and the depression scales was observed in

the third- and fifth-grade sample, analyses proceeded to test the first aim of the study, which was to determine whether catastrophizing predicts concurrent depressive symptoms in both younger and older children.

Regression analyses were conducted to test the hypothesis that catastrophizing predicts depression in younger and older children. Total scores from the CCSQ-CAT and the CNCEQ-CAT were regressed on the CDI hopelessness depression scale, the CES-DC, and the RCADS major depressive disorder subscale. These three regression analyses were conducted at each grade level. Given that anxiety demonstrated high correlations with depression in the present sample, ( $r = .52 - .76$ ) the anxiety composite score from the RCADS was entered first as a predictor of depressive symptoms, to control for existing levels of anxiety, followed by the CCSQ-CAT and the CNCEQ-CAT, which were entered together on the second step (see Table 6).

Table 6

*Regression Analyses using anxiety in step 1 and catastrophizing as measured by the CCSQ and CNCEQ in step 2 predicting CDI, CES-DC, and RCADS-MDD scores in each grade*

Measure	$R^2$	$\Delta R^2$	df	$\Delta F$	$\Delta p$
<b>CDI</b>					
Full Sample	.22	.04	2,154	3.63	.03*
Grade 3	.24	.12	2,65	5.12	.01*
Grade 5	.28	.13	2,49	4.52	.02*
Grade 7	.46	.04	2,32	1.11	.34

CES-DC					
Full Sample	.37	.03	2,154	3.29	.04*
Grade 3	.38	.09	2,65	4.72	.01*
Grade 5	.30	.02	2,49	.71	.50
Grade 7	.52	<.01	2,32	.13	.88
RCADS-MDD					
Full Sample	.40	.02	2,154	2.99	.05
Grade 3	.38	.04	2,65	1.89	.16
Grade 5	.38	.11	2,49	4.28	.02*
Grade 7	.60	.02	2,32	.89	.42

*Note.* CCSQ = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-ANX=RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\*  $p < .05$

Predicting hopelessness depression as measured by the CDI hopelessness depression scale, the addition of the CCSQ-CAT and the CNCEQ-CAT together resulted in a significant 12% increase in the variance accounted for in the third-grade sample and a 13% increase in the fifth-grade sample ( $p = .01$  and  $p = .02$ , respectively); however results in the third grade sample should be interpreted with caution as a poor internal consistency was found with the CDI hopelessness depression scale in this sample. Predicting depressive symptoms as measured by the CES-DC, the addition of the CCSQ-CAT and

the CNCEQ-CAT together resulted in a significant 9% increase in the variance accounted for in only the third-grade sample ( $p=.01$ ). Predicting depressive symptoms as measured by the RCADS MDD subscale, the addition of the CCSQ-CAT and the CNCEQ-CAT together resulted in a significant 11% increase in the variance accounted for in only the fifth-grade sample ( $p=.02$ ). Additional variance was not accounted for in the seventh-grade sample using any measure of depression. The hypothesis that catastrophizing would predict depressive symptoms in both younger and older children was partially supported by these results. These results suggest that catastrophizing does predict depressive symptoms in younger children but not in older children such that additional variance in depression scores was accounted for by catastrophizing in only the third- and fifth-grade participants but not the seventh-grade participants.

However, due to the low correlation between the catastrophizing measures, regression analyses were run again using the CCSQ-CAT and the CNCEQ-CAT individually as predictors following the RCADS anxiety composite score (see Table 7 & 8).

Table 7

*Regression Analyses using anxiety in step 1 and catastrophizing as measured by the CCSQ\_CAT in step 2 predicting CDI, CES-DC, and RCADS-MDD scores in each grade*

Measure	$R^2$	$\Delta R^2$	df	$\Delta F$	$\Delta p$	$B$	S.E.	$\beta$
CDI								
Full Sample	.20	.01	1,155	2.01	.16	.05	.04	.11
Grade 3	.18	.07	1,66	5.27	.03*	.11	.05	.27

Grade 5	.15	<.01	1,50	.18	.67	.03	.07	.06
Grade 7	.43	.01	1,33	.40	.53	-.08	.12	-.09
<hr/>								
CES-DC								
Full Sample	.35	.01	1,155	2.82	.10	.21	.12	.12
Grade 3	.34	.04	1,66	3.97	.05	.30	.15	.21
Grade 5	.29	.01	1,50	.59	.45	.17	.22	.10
Grade 7	.52	<.01	1,33	.08	.77	.12	.42	.04
<hr/>								
MDD								
Full Sample	.38	<.01	1,155	.55	.46	.04	.06	.05
Grade 3	.35	.01	1,66	1.16	.29	.08	.08	.11
Grade 5	.32	.05	1,50	3.46	.07	.18	.10	.25
Grade 7	.59	.02	1,33	1.30	.26	-.21	-.14	-.14

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; RCADS-ANX = RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\* $p < .05$

The addition of the CCSQ-CAT following the anxiety composite score resulted in a significant 7% increase in the variance accounted for in the CDI hopelessness depression scores in only the third-grade sample ( $p = .03$ ). It should be noted that the CDI hopelessness depression scale was invalid in this age group; however, a 4% increase in variance accounted for in CES-DC scores following the addition of the CCSQ-CAT was found in the third-grade sample ( $p = .05$ ). Catastrophizing was only predictive of

depressive symptoms in the youngest participants in this study. These results only partially support the hypothesis that catastrophizing is a predictor of depressive symptoms in both younger and older children; the results suggest that catastrophizing is predictive of depressive symptoms in only very young children (grade 3 only). These results are consistent with the results obtained using the two catastrophizing scales together as predictors in the third-grade sample but are inconsistent with results found in the fifth-grade sample. The CCSQ-CAT did not predict depressive symptoms in the fifth-grade sample while the two catastrophizing scales entered together did predict depressive symptoms in this age group.

Using the CNCEQ-CAT as a predictor of depressive symptoms following the RCADS anxiety composite score (see Table 8) yielded similar results to the regression analyses using both the CNCEQ-CAT and the CCSQ-CAT together.

Table 8

*Regression Analyses using anxiety in step 1 and catastrophizing as measured by the CNCEQ\_CAT in step 2 predicting CDI, CES-DC, and RCADS-MDD scores in each grade*

Measure	$R^2$	$\Delta R^2$	df	$\Delta F$	$\Delta p$	$B$	S.E.	$\beta$
CDI								
Full Sample	.22	.03	1,155	6.34	.01*	.10	.04	.20
Grade 3	.19	.07	1,66	5.75	.02*	.11	.04	.29
Grade 5	.28	.13	1,50	9.18	<.01*	.24	.08	.40
Grade 7	.46	.04	1,33	2.29	.14	-.21	.14	-.23

CES-DC								
Full Sample	.36	.02	1,155	4.90	.03*	.28	.13	.16
Grade 3	.36	.06	1,66	6.23	.02*	.36	.14	.27
Grade 5	.30	.02	1,50	1.11	.30	.27	.26	.14
Grade 7	.52	<.01	1,33	.27	.61	.25	.48	.07
MDD								
Full Sample	.40	.02	1,155	5.93	.02*	.15	.06	.17
Grade 3	.37	.03	1,66	3.03	.09	.13	.07	.19
Grade 5	.35	.08	1,50	6.39	.02*	.27	.11	.31
Grade 7	.57	<.01	1,33	.02	.88	.03	.21	.02

*Note.* CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-ANX=RCADS anxiety composite score; RCADS-MDD = RCADS major depressive disorder subscale

\*  $p < .05$

Predicting hopelessness depression, the addition of the CNCEQ-CAT resulted in a significant 7% increase in the variance accounted for in CDI hopelessness depression scale scores in the third-grade sample and a 13% increase in the fifth-grade sample ( $p = .02$  and  $p < .01$ , respectively); although, it should be noted that the CDI hopelessness subscale was an invalid measure of hopelessness depression in the third-grade sample. Predicting depressive symptoms as measured by the CES-DC, the addition of the CNCEQ-CAT resulted in a significant 6% increase in the variance accounted for in the third-grade sample ( $p = .02$ ). Predicting depressive symptoms as measured by the RCADS MDD

subscale, the addition of the CNCEQ-CAT resulted in a significant 8% increase in the variance accounted for in the fifth-grade sample ( $p=.02$ ). As was observed in the full sample these results indicate that catastrophizing was predictive of depressive symptoms, after controlling for anxiety, in third- and fifth-grade participants.

The initial hypothesis addressing the question of whether catastrophizing predicts depressive symptoms in children was partially supported. It was hypothesized that catastrophizing would predict depressive symptoms in both younger and older children. Analyses combining both the younger and older participants suggested that catastrophizing does predict depressive symptoms in children between 7 and 13 years of age; however, when the analyses were conducted at each individual grade level, it was observed that catastrophizing was predictive of depressive symptoms in younger children but not in older children, partially confirming the initial hypothesis. The results replicate what has previously been found in the large group; however, in this study, closer examination found differences that previous studies had not found as they had not looked at the fine grade distinctions within the large group.

#### *Grade, catastrophizing, and depressive symptoms*

Another goal of this study was to investigate whether grade is a factor influencing the predictive nature of catastrophizing on concurrent depressive symptoms. First, grade was examined as a between groups variable that might explain differences in catastrophizing scores. Specifically, the CNCEQ-CAT scores and the CCSQ-CAT scores were initially compared between the third- and fifth-grade participants, the fifth- and seventh- grade participants, and the third- and seventh-grade participants through planned

comparisons using contrast coefficients (for Means and SD see Table 9; for planned comparisons see Table 10).

Table 9

*Mean (SD) CCSQ catastrophizing scale and CNCEQ catastrophizing subscale scores*

Measure	Grade 3	Grade 5	Grade 7
CCSQ_CAT	10.51 (5.72)	11.57 (5.40)	9.50 (3.72)
CNCEQ_CAT	13.39 (6.16)	12.89 (4.53)	11.33 (3.38)

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale.

Table 10

*Planned Comparisons using contrast coefficients between third-, fifth-, and seventh-grade children*

Measure	Value of Contrast	Standard Error	t-value	df	p-value
CCSQ_CAT					
Grade 3 – Grade 5	-1.06	.95	-1.11	155	.27
Grade 5 – Grade 7	2.07	1.13	1.83	155	.07
Grade 3 – Grade 7	1.01	1.07	.94	155	.35
CNCEQ_CAT					
Grade 3 – Grade 5	.50	.93	.54	155	.59
Grade 5 – Grade 7	1.56	1.10	1.41	155	.16
Grade 3 – Grade 7	2.06	1.05	1.96	155	.05

*Note.* CCSQ\_CAT = Children's Cognitive Style Questionnaire catastrophizing scale; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale

Inconsistent with previous findings, there were no significant differences in CNCEQ-CAT scores or CCSQ-CAT scores between the grades suggesting that in the present sample, age, as measured by grade level, was not related to differences in self-reports of catastrophizing cognitions. In addition, the small effect size was found in both the analyses testing differences in the CNCEQ-CAT scores and the CCSQ-CAT scores across grade ( $\eta^2 = .02$  in both analyses). Though there was no main effect of grade, moderation analyses were conducted to test whether grade interacted with the relationship between catastrophizing and depression.

Hierarchical regressions were conducted to test whether grade moderated the relationship between catastrophizing and depression. The catastrophizing scales were separately regressed on each of the depression scales resulting in six moderation models. Grade was not found to moderate the relationship between either of the catastrophizing scales with any of the depression scales (see Table 11).

Table 11

*Regression Analyses testing a moderational model between catastrophizing, grade, and depression using grade as a moderator*

Dependent	Interaction term	$R^2$	$\Delta R^2$	df	$\Delta F$	$\Delta p$	$B$	S.E.	$\beta$
CDI									
	Grade*CNCEQ	.13	<.01	1,154	.55	.46	.02	.03	.22
	Grade*CCSQ	.07	<.01	1,154	<.01	.97	<-.01	.03	-.01
CES-DC									
	Grade*CNCEQ	.15	.01	1,154	1.52	.22	.12	.10	.22

	Grade*CCSQ	.11	<.01	1,154	.58	.45	.07	.10	.22
<hr/>									
MDD									
	Grade*CNCEQ	.18	.01	1,154	1.35	.25	.06	.05	.33
	Grade*CCSQ	.11	<.01	1,154	.05	.82	.01	.05	.07

*Note.* CCSQ = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; MDD = RCADS major depressive disorder subscale

#### *Catastrophizing as a predictor of depression in children with elevated levels of anxious and depressive symptoms*

A final question addressed in this study was whether there was a trend suggesting a difference in the predictive relationship between catastrophizing and depression in children who exhibit elevated levels of both anxious and depressive symptoms and those who did not exhibit this combination of symptoms. It was predicted that a trend would suggest that catastrophizing is a stronger predictor of depressive symptoms in children who exhibit elevated levels of anxious and depressive symptoms than children who do not exhibit elevated levels of both anxious and depressive symptoms. A mean split was used to divide participants into two groups, those with elevated anxious and depressive symptoms and those without elevated anxious and depressive symptoms. Participants who scored above the mean on both the RCADS anxiety composite score and the depression scale were identified as having elevated anxious and depressive symptoms. All other participants were compiled together as the control group. Regression analyses were

conducted within each group with each depression scale as a dependent variable and using the CCSQ-CAT as a single predictor (Table 12), the CNCEQ-CAT as a single predictor (Table 13), and the CCSQ-CAT and the CNCEQ-CAT as predictors entered together (Table 14).

Table 12 .

*CCSQ catastrophizing scale predicting depression in the anxious-depressive group and the control group*

Measure	$R^2$	df	F-ratio	p-value	B	S.E.	$\beta$
CDI							
Control	.00	1,129	.50	.48	.03	.04	.06
Anxious-depressive	.01	1,25	.26	.62	-.04	.07	-.10
CES-DC							
Control	.00	1,112	.35	.57	.09	.15	.06
Anxious-depressive	.02	1,42	.65	.42	.16	.19	.12
MDD							
Control	.00	1,114	.18	.67	.03	.07	.04
Anxious-depressive	.01	1,40	.52	.48	.07	.10	.11

*Note. Anxious-depressive = elevated anxious and depressive symptoms; CCSQ = Children's Cognitive Style Questionnaire catastrophizing subscale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; RCADS-MDD = RCADS major depressive disorder subscale*

Table 13

*CNCEQ catastrophizing scale predicting depression in the anxious-depressive group and the control group*

Measure	R <sup>2</sup>	df	F-ratio	p-value	B	S.E.	β
CDI							
Control	.02	1,129	2.81	.10	.06	.04	.15
Anxious-depressive	.03	1,25	.89	.36	.08	.09	.19
CES-DC							
Control	.02	1,112	2.44	.12	.20	.13	.15
Anxious-depressive	.13	1,42	6.17	.02*	.56	.23	.36
MDD							
Control	.02	1,114	1.72	.19	.08	.06	.12
Anxious-depressive	.28	1,40	15.52	<.01*	.47	.12	.53

*Note.* Anxious-depressive = elevated anxious and depressive symptoms; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-MDD = RCADS major depressive disorder subscale

\*p<.05

Table 14

*CCSQ\_CAT and CNCEQ\_CAT predicting depression in the anxious-depressive group and the control group*

Measure	R <sup>2</sup>	df	F-ratio	p-value
CDI				

Control	.02	2,128	1.51	.23
Anxious-depressive	.07	2,24	.84	.45
CES-DC				
Control	.02	2,111	1.24	.30
Anxious-depressive	.13	2,41	3.07	.06
MDD				
Control	.02	2,113	.88	.42
Anxious-depressive	.29	2,39	7.91	<.01*

*Note.* Anxious-depressive = elevated anxious and depressive symptoms; CCSQ\_CAT = Children's Cognitive Style Questionnaire Catastrophizing scale; CDI = Children's Depression Inventory hopelessness depression scale; CES-DC = Centre for Epidemiological Studies Depression scale for children; CNCEQ\_CAT = Children's Negative Cognitive Error Questionnaire catastrophizing subscale; RCADS-MDD = RCADS major depressive disorder subscale

\*  $p < .05$

Consistent with expectations, across all three depression scales, the pattern suggested that the anxious-depressive participants' catastrophizing scores accounted for a larger magnitude of variance in scores on the depression scales than those participants who did not exhibit elevated anxious and depressive symptoms. Firstly, in predicting CDI hopelessness depression subscale scores using the CNCEQ-CAT and the CCSQ-CAT as predictors, 2% of the variance was accounted for by catastrophizing in the control group ( $F(2, 128) = 1.51, p = .23$ ) while 7% was accounted for in the anxious-depressive group ( $F(2, 24) = .84, p = .45$ ). Secondly, in predicting CES-DC scores using the CNCEQ-CAT and the CCSQ-CAT as predictors, 2% of the variance in depressive symptoms was

accounted for by catastrophizing in the control group ( $F(2, 111) = 1.24, p=.30$ ) while 13% was accounted for in the anxious-depressive group ( $F(2,41) = 3.07, p=.06$ ). Finally, in predicting RCADS MDD subscale scores using the CNCEQ-CAT and the CCSQ-CAT as predictors, 2% of the variance in depressive symptoms was accounted for by catastrophizing in the control group ( $F(2, 113) = .88, p=.42$ ) while 29 % was accounted for in the anxious-depressive group ( $F(2,39) = 7.91, p<.01$ ). These results provide preliminary evidence of a trend suggesting that catastrophizing is a stronger predictor of depressive symptoms in children who exhibit elevated levels of anxious and depressive symptoms than those who do not exhibit this combination of symptoms.

#### Discussion

The purpose of this study was to assess the predictive relationship between catastrophizing and depressive symptoms in children. In the Hopelessness Theory of Depression (Abramson et al., 1989), individuals who are faced with a negative life event are at increased risk of becoming hopeless. This relationship is posited to lead to hopelessness depression, if the individual has a depressogenic inferential style towards inferring the causes of a negative event, the consequences of that event, and in their self-appraisal. Consistently inferring consequences of negative events as being worse than what they most likely would be is the depressogenic inferential style referred to as catastrophizing. This study examined catastrophizing as a concurrent predictor of depressive symptoms in third-, fifth-, and seventh-grade children using two measures of catastrophizing and three measures of depression. From the analyses conducted in this study, it was observed that (1) catastrophizing was a predictor of depressive symptoms in younger but not older children, (2) younger children did not catastrophize negative events

more frequently than older children, (3) there was pattern that the anxious-depressive participants' catastrophizing scores accounted for a larger magnitude of variance in scores on the depression scales than those participants who did not exhibit this combination of symptoms, and (4) the results from all of the analyses examining the relationship between catastrophizing and depression were independent of gender and the child's living situation.

The first aim of this study was to determine whether catastrophizing the consequences of negative events was predictive of depressive symptoms in children. It was hypothesized that catastrophizing would predict depressive symptoms in both younger and older children (e.g., Abela, 2001; Hankin & Abramson, 2002). Catastrophizing was predictive of depressive symptoms in the third- and fifth-grade sample. Although, the CDI hopelessness depression scale was unreliable in the third-grade sample, this result was still observed using the other measures of depression. Unexpectedly, catastrophizing was not predictive of depressive symptoms in the seventh-grade sample. Though unexpected, the lack of a relationship between catastrophizing and depression in the seventh-grade sample complements the findings from a previous study which found no correlation between catastrophizing and hopelessness depression or between catastrophizing and depression (as measured by the full CDI scale) in a sample of seventh- grade children (Abela & Sarin, 2002).

However, in contrast to the present results, Abela (2001) did find a significant correlation between the full CDI inventory (the CDI hopelessness depression scale was not used in his study) and the CCSQ-CAT ( $r = .51, p < .01$ ) in his seventh-grade sample. Moreover, Weems et al. (2001), in their clinical sample of children between the ages of 6

and 17 years diagnosed with an anxiety disorder, had reported a correlation between depression and catastrophizing, while controlling for anxiety, which was comparable to the correlation found in the present study, which used the same inventories: the CDI [full inventory in Weems et al. (2001); hopelessness depression scale in the present study] and the CNCEQ-CAT ( $r = .22$ ;  $r = .18$ , respectively).

Although, contrary to the findings in the present study, Abela (2001) had concluded in his study that seventh-grade participants with a depressogenic inferential style of catastrophizing consequences displayed increased depressive symptoms following a negative event. He then separately discussed this same finding in his third-grade sample. His separate discussion of the findings across the two grades is suggestive that he had conducted his analyses separately within each grade; however, this was not the case. With closer examination of his results, he had noted that he collapsed the two grades when conducting his analyses (i.e., he used the full sample) as he found no grade interactions. In this way, the results of Abela (2001) do fall in line with those found in this study: catastrophizing was predictive of concurrent depressive symptoms in the full sample. The problem with Abela's (2001) study is that his conclusions are misleading. The current study demonstrated that although there was a predictive relationship between catastrophizing and depression in the full sample, results from analyses conducted within each grade demonstrated that the relationship between catastrophizing and depression differed: catastrophizing was predictive of depressive symptoms in the third- and fifth-grade sample but not in the seventh-grade sample.

The lack of a predictive relationship between catastrophizing and depressive symptoms in the seventh-grade sample is contrary to the specifications under

hopelessness theory. In the original article introducing hopelessness theory (Abramson et al., 1989), there is discussion of a depressogenic attributional style which may predispose an individual to infer internal, stable, and global causes of negative events, increasing the likelihood they may become hopeless. The authors go on to suggest that the catastrophizing cognitive style may also be a diathesis for hopelessness. The results from the current study did not demonstrate a relationship between catastrophizing and concurrent depressive symptoms in seventh-grade children.

Abela and Sarin (2002) approach the lack of a relationship between catastrophizing and depression in seventh-grade children as thus, studies that attempt to examine the depressogenic inferential styles concerning three inferences, cause (attribution), consequence (catastrophizing), and self-appraisal, separately, have yielded inconsistent results due to the variability in the presence and frequency of use of one, two, or all three inferential styles in an individual. However, refuting this argument, if a seventh-grade sample is large enough, the variability in the extent to which each inferential style is present in each individual would be controlled for. That is, the odds of having a seventh-grade sample where all participants engage in catastrophizing the least frequently as compared to making negative attributions or negative self-appraisals, is extremely low. Therefore, a relationship between catastrophizing and depression could still be detected in a seventh-grade sample.

It should also be noted that the CCSQ-CAT and the CNCEQ-CAT demonstrated the lowest internal consistency in the seventh-grade sample ( $\alpha=.61$  and  $\alpha=.46$ , respectively). A study by Hankin and Abramson (2002) utilized a subscale of the Adolescent Cognitive Style Questionnaire (Hankin & Abramson, 2002) to measure

catastrophizing and the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) to measure depression in their grade 9 to 12 sample. Their study did find that catastrophizing was predictive of concurrent depressive symptoms (though the study did not initially control for anxiety). It is possible that seventh-grade children are more similar to adolescents, and perhaps even to adults, than to younger children, and thus should be tested using either adult inventories or inventories developed for use in the adolescent population. If the present study had measured catastrophizing in the seventh-grade sample using an instrument specifically designed to measure catastrophizing in adolescents or had used interviews to measure catastrophic thinking, a relationship between catastrophizing and depression may have been observed; on the other hand, using the same instrument across the three grades did facilitate comparison.

The conclusion that can be drawn from the analyses addressing the question, “does catastrophizing predict depressive symptoms in children”, is that a predictive relationship between catastrophizing and depressive symptoms was observed in the third- and fifth- grade children, but no conclusive statements can be made regarding the relationship between catastrophizing and depressive symptoms in seventh-grade children as the internal consistency of the catastrophizing measures in this age group was low, potentially compromising the measurement of catastrophizing.

The second aim of this study was to determine whether grade influenced the relationship between catastrophizing and depression. Payne and Abela (2003) found in their study, testing the diathesis-stress model between catastrophizing and negative life events in predicting depressive symptoms, that their third-grade participants were more likely to catastrophize than their seventh-grade participants; however, Payne and Abela

(2003) did not report the effect size in their analysis. In the present study, there were no significant differences between any of the grade levels in catastrophizing scores.

Additionally, a small effect size ( $\eta^2 = .02$ ) was found in the analyses, further suggesting that younger and older children catastrophize the consequences of negative events to the same degree. The results do support Watts and Weems (2006) decision to collapse their sample of children aged 9 to 12 whom they compared to adolescents aged 13 to 17 on degree of catastrophic thinking.

Additionally, as noted before, the internal consistency of both catastrophizing scales used in the present study (the CNCEQ-CAT and the CCSQ-CAT) was low in the seventh-grade sample ( $\alpha = .46$  and  $\alpha = .61$ , respectively). Unfortunately, Payne and Abela (2003), who had found a difference in catastrophizing between younger and older participants, did not report the internal consistency of the CCSQ-CAT within each grade, but rather reported the internal consistency across their entire sample ( $\alpha = .81$ , comparable to that found in this study,  $\alpha = .76$ ). Though Payne and Abela (2003) did detect an effect, their measurement of catastrophizing in their seventh-grade sample may have been compromised as a low internal consistency of the CCSQ-CAT in a seventh-grade sample was found in this study. On the other hand, in the case of the present study, the samples were smaller which may have contributed to the inability to detect a significant difference between the two groups. The moderate internal consistency of the CCSQ-CAT reported in Payne and Abela (2003) and Abela (2001), and the moderate internal consistency reported by Leitenberg and colleagues (1985) and Weems and colleagues (2001) for the CNCEQ-CAT, had justified the inclusion of the CCSQ-CAT and the CNCEQ-CAT in this study. The results from this study were not able to support the hypothesis that grade

influenced the relationship between catastrophizing and depression as no significant differences were found between any of the age groups with respect to catastrophizing, nor was there an interaction between grade and catastrophizing in predicting depressive symptoms. However, it can be concluded that third- and fifth-grade children catastrophize negative events at a similar frequency.

The third-aim of this study was to determine whether there was a trend suggesting that catastrophizing is a stronger predictor of depressive symptoms in children with elevated levels of both anxious and depressive symptoms than in children who did not exhibit elevated levels of both anxious and depressive symptoms. Results using the CNCEQ-CAT as a measure of catastrophizing provide preliminary evidence to a trend suggesting that catastrophizing is a stronger predictor of depressive symptoms in children with elevated levels of both anxious and depressive symptoms. Results using the CCSQ-CAT as a measure of catastrophizing were inconclusive.

In addition to catastrophizing, this study used three inventories to measure depression. The purpose of using multiple measures of a given construct was to ensure the study assessed the construct in its entirety. If the relationship between catastrophizing and hopelessness depression was unique, then the CES-DC, and the RCADS MDD subscale should not have displayed a similar relationship with catastrophizing, as both were designed to measure the entire construct of depression; however, this was not the case. As it stands, a relationship between catastrophizing and depression was observed in this sample but the nature of that relationship is unclear. In using multiple measures of depression, results from this study suggest that catastrophizing is related to symptoms

associated with depression, but not specifically those that define the construct of hopelessness depression.

The findings from this study do provide some evidence for the generalizability of hopelessness theory to hopelessness depression in children. The moderate internal consistency found in the two catastrophizing scales for the third- and fifth-grade participants suggest that there may exist a depressogenic inferential style of inferring the consequences of any negative event as being catastrophic. In addition, the results from this study do provide evidence for a relationship existing between catastrophizing and depressive symptoms in third- and fifth-grade participants. In adults, having a negative attributional style (i.e., consistently making internal, stable, and global attributions as to the cause of a negative event), catastrophizing, and consistently giving oneself a negative appraisal, increases the likelihood that an individual will become hopeless following a negative event, leading to hopelessness depression. In young children, studies have demonstrated that having a negative attributional style is not associated with depressive symptoms, rendering one inferential style (the inferential style related to the potential causes of a negative event) in hopelessness theory non-applicable in the child population. The current study provides support for an association between a depressogenic inferential style towards the consequences of a negative event (i.e., catastrophizing) and depressive symptoms as has been demonstrated in adults; however, the CDI hopelessness depression scale, the measure of hopelessness depression, exhibited a very low internal consistency in the third-grade sample ( $\alpha=.36$ ) indicating that the measure was not valid in this age group. Either another measure should be developed to measure hopelessness depression in this age group or, one could suggest, hopelessness depression is very rare or

nonexistent in very young children. Perhaps very young children have not developed the abstract reasoning required to conceptualize hopelessness; in addition, they may have not experienced a sufficient number of helplessness experiences, simply due to their young age, to develop an overall feeling of helplessness. The hopelessness theory model could be a model for hopelessness depression in middle aged children (i.e., ages 10 to 12 years), but for young children, the hopelessness theory model may instead be applied to depression as a whole as a relationship between catastrophizing and the inventories used to measure the entire construct of depression was present in this age group. Integrating the results from this study with those from Abela's 2001 study regarding self-appraisal and depression in the child population, hopelessness theory could be comprised of two parts and described as such: children who (1) possess a depressogenic inferential style towards the consequences of an event and who (2) consistently give themselves a negative appraisal (as demonstrated in Abela, 2001) possess a diathesis that is associated with elevated levels of depressive symptoms in very young children, and symptoms of hopelessness depression and depression in middle-aged children.

With respect to the seventh-grade participants, it may be more appropriate to categorize them as adolescents rather than children as the results from this study demonstrate that the child inventories used to measure catastrophizing may not be appropriate for this age group; that is, they may not be providing the best measure of catastrophizing. Based on the results from the present study, the lack of a relationship between the two variables in the seventh-grade participants could suggest that catastrophizing is not a depressogenic inferential style in adolescents, which would be contrary to that posited by hopelessness theory. Making catastrophic inferences as to the

consequences of a given negative event may not increase the risk of an adolescent becoming hopeless and furthermore developing hopelessness depression. Catastrophizing may only be related to depression in young children and adults. Such a finding would have profound implications for hopelessness theory and the way it is to be applied to adolescents. On the other hand, it is more likely that catastrophizing is associated with depressive symptoms in adolescents as was demonstrated by Hankin and Abramson (2002), who used inventories developed for adolescents and adults to measure the relationship between these two variables in their grade 9 through 12 sample. Additionally, Turner and Cole (1994) reported an association between attributional style and depressive symptoms in their eighth grade participants. Drawing from these studies and the results from the present study showing low internal consistency of the catastrophizing scales in the seventh- grade sample, it can be proposed that both catastrophizing and attributional style are associated with depressive symptoms in this age group (using adolescent measures of each construct) further suggesting that seventh-grade participants are more like adults than children in terms of the components that make up hopelessness theory and the relationships between them.

From the results in the seventh-grade sample, it could be suggested that in future studies seventh-grade participants be grouped in the adolescent population rather than the child population and be given inventories that have been developed for adolescents or perhaps even adults. As the results from this study imply that catastrophizing predicts depression in younger children, information gathered from this study may provide additional direction for the development of intervention methods of preventing depression in children. Non-professionals could be easily trained to identify children who

catastrophize. Training non-professionals would require limited resources and be cost-effective allowing for more accessible resources to at risk children and faster dissemination of therapeutic intervention training. These results also provide support, for individuals aiming to prevent depression in children, to target catastrophizing thought processes in their cognitive interventions and to incorporate these programs into the school curriculum. Additionally, not only might these intervention programs target the prevention of depression but anxiety as well. The present study demonstrated that catastrophizing was a stronger predictor of depressive symptoms in children who exhibited elevated levels of anxious and depressive symptoms than those who do not. Addressing catastrophic thinking might contribute to decreasing and preventing anxious and depressive symptoms in children.

#### *Limitations*

Three limitations to this study are (1) the low internal consistencies of the two measures of catastrophizing in the seventh- grade sample, (2) the lack of a correlational relationship between the catastrophizing measures in the younger participants, and (3) the low internal consistency of the CDI hopelessness depression scale in the third-grade sample. As a result, it is difficult to determine whether the results are due to problems with the inventories or problems with the theory. The lower than expected correlation between the two measures of catastrophizing makes it difficult to analyse and criticize the hopelessness theory framework. Perhaps, as neither inventory provided clear results, one may suspect that the problem is with the construct itself. Catastrophizing may exhibit itself differently in a child than in an adult, and thus the definition of catastrophizing as defined in adults may need to be modified for children. This study did find significant

relationships between the catastrophizing measures and the depression scales in the third-grade sample even though a low correlation was found between the catastrophizing scales. It could be hypothesized that the catastrophizing scales were measuring different aspects of catastrophizing. Catastrophizing can be defined in terms of frequency (the frequency an individual engages in catastrophizing) and length (the number of catastrophic consequences an individual attaches to one negative event, i.e., the catastrophizing chain). The design of the CCSQ-CAT could be measuring length of catastrophizing chain, as the likert scale for each item is a range of how many bad things would result from a hypothetical negative event: 0 - This won't cause other bad things to happen to me to 3 - This will cause many terrible things to happen to me. On the other hand, the CNCEQ-CAT may be measuring frequency of catastrophizing. In the CNCEQ-CAT, a catastrophizing thought is provided to the participant for each hypothetical scenario and the likert scale is a range of whether the individual would generate that thought in that scenario: 1 - not at all like I would think to 5 almost exactly like I would think. Total scores would represent the frequency of catastrophic thinking. Perhaps in younger children these two facets of catastrophizing are independent of one another, which would lead to a low correlation between the two catastrophizing scales.

To address the first two limitations, (1) the low internal consistencies of the two measures of catastrophizing in the seventh- grade sample and (2) the lack of a correlational relationship between the catastrophizing measures in the younger participants, future studies should choose to use multiple methods of measuring catastrophizing, one of them perhaps being the interview method, to set a gold standard for the construct. It would have been useful to include another method of measuring

catastrophizing rather than using additional self-report measures of the construct. Additional methods of measuring catastrophizing, such as through interviews or corroborative reports provided by parents or teachers, would have provided information to conduct a validity analysis of the measures of catastrophizing. As well, catastrophizing may have been more accurately measured in the seventh-grade sample using the Adolescent Cognitive Style Questionnaire (Hankin & Abramson, 2002). However, the benefit of using the same inventory across the three grade levels, as was done in this study, was that it facilitated comparison of scores across the three grades. In any case, there still should be a relationship between catastrophizing and depression in adolescents as the relationship between the two variables is present in adults (Ghahramanlou-Holloway et al, 2008; Haaga, 1992; Sullivan & D'Eon, 1990). As well, as previously mentioned, the CCSQ-CAT and the CNCEQ-CAT did demonstrate moderate internal consistencies in other studies, explaining their inclusion in the present study.

With regards to the third limitation, the low internal consistency of the CDI hopelessness depression scale in the third-grade sample, potential cognitive comprehension differences may be an explanation for the low internal consistency in this age group, but there is strong support in other studies demonstrating good reliability in this age group (e.g. Kovac, 1980; 1981). The lack of a measure of hopelessness depression did not allow for an evaluation of hopelessness theory as a theory of hopelessness depression in the third-grade sample. A hopelessness depression inventory could be developed for very young children, and in its development, one could begin to examine whether hopelessness depression exists in young children, which could have

important implications for our understanding of depression through hopelessness theory in very young children.

Another limitation in this study was the lack of inclusion of a measure of hopelessness. Hopelessness theory proposes it is the state of being hopeless that causes hopelessness depression. A measure of hopelessness, such as the Hopelessness Scale for Children (Kazdin, Unis, Esveldt-Dawson, & Sherick, 1983) could also have been used to validate the three measures of depression, ensuring that the three measures of depression were accounting for the hopelessness symptom exhibited by depressed individuals. The CDI hopelessness depression scale was intended to be used as a measure of hopelessness symptoms, which would define hopelessness depression. Using a scale developed for the purpose of measuring hopelessness, may have provided more variability in hopelessness than in hopelessness depression in this non-clinical sample. It may have been easier to detect an effect between catastrophizing and hopelessness, due to a probable higher prevalence of hopelessness than of depression, which may have provided more consistent results. Furthermore, the number of negative life events experienced by each participant was not measured as a potential stressor for depression as described in hopelessness theory. Though this variable has been included in other studies (e.g., Abela, 2001, Abela et al., 2004), examining the specific relationship between catastrophizing and negative life events was not the aim of this study

An additional limitation to this study is the small sample size. The prevalence of depression in children has been estimated to be 3%. Based on this prevalence, approximately 5 children would be expected to be depressed. Note however, the prevalence of symptoms of depression is likely much higher. Analyses examining the

relationship between depression and catastrophizing may have been more consistent had the sample been larger, providing more variability in depressive symptoms, increasing the chance of detecting an effect that may be present. On the other hand, consent rates ranging from 2%- 25% may have resulted in a selection bias of participants. The child participants in this study may not be representative of the child population, which was the intended population in this study; however, in the time period allotted to collect child non-clinical data, a sample of 158 child participants is quite large considering consent rates were as low as 2% at the majority of schools. In addition, the small size of the seventh-grade sample ( $n=36$ ) raises the issue of restricted range in terms of depression and catastrophizing scores. Restrictive range influences the representativeness of the sample; With respect to this study, the results are preliminary and cannot be generalized to seventh –grade children. As such the results obtained using the seventh-grade sample should be interpreted with caution until more data is obtained.

#### *Future Directions*

The data from this study suggest that catastrophizing is related to anxiety and depression in younger children, that younger children do not catastrophize more than older children, and that the predictive relationship between catastrophizing and depression may be stronger in children with elevated levels of anxiety and depression than in children who do not exhibit this combination of symptoms. An area of future study would be to evaluate the psychometric properties of the CCSQ-CAT and the CNCEQ-CAT. The results from this study suggest that the CCSQ-CAT and the CNCEQ-CAT measure two different but related constructs; as well, the CCSQ-CAT and the CNCEQ-CAT may not be the inventories of choice to measure catastrophizing in a

seventh-grade sample due to the low internal consistencies observed when these measures were used within this age group. Future research may aim at revising the CCSQ-CAT or developing a new inventory to measure catastrophizing. Studies examining catastrophizing may also include interviews or corroborative reports as additional methods of measuring catastrophizing.

Another area of future research is to further evaluate the predictive relationship between catastrophizing and depression in adolescents. The results from this study suggest that there is a weak to nonexistent relationship between catastrophizing and depression when controlling for anxiety in seventh-grade participants. However, the low internal consistencies found in the measures of catastrophizing may have compromised the results. Future studies should consider using an inventory developed for adolescents such as the Adolescent Cognitive Style Questionnaire (Hankin & Abramson, 2002) to elucidate the relationship between catastrophizing and depressive symptoms in this age group.

Future studies may also aim to develop an inventory to measure the construct of hopelessness depression. Such an instrument may provide a gold standard for measuring hopelessness depression. The instrument may highlight the importance of emphasizing hopelessness theory as a theory of hopelessness depression, or it may reveal that the hopelessness theory may be a theory for depression as a whole and not specifically for the symptoms that make up hopelessness depression.

Childhood depression may place an individual at risk of developing future psychopathologies in adolescence and adulthood. Depressive symptoms exhibited by children aged 10 and 11 have been shown to predict aggression, anxious symptoms,

depressive symptoms, and low self-esteem 10 years later in adulthood (Aronen & Soininen, 2000). Adults who were diagnosed with major depressive disorder as children have shown greater prevalence of bipolar disorder and major depressive disorder than non-clinical samples (Geller, Zimmerman, Williams, Bolhofner, & Craney, 2001). Studying the cognitive diatheses of depressive symptoms and depression, such as catastrophizing, may guide researchers to detect high risk children and intervene earlier, before depressive symptoms develop, to reduce the risk of pathological disorders in adolescence and adulthood.

### *Conclusion*

The aim of this study was to examine the predictive relationship between catastrophizing and depressive symptoms in children. The results suggest that catastrophizing predicts depressive symptoms in younger children but are inconclusive as to whether catastrophizing is predictive of depressive symptoms in older children (though the relationship between catastrophizing and depressive symptoms appears to be independent of age). Additionally, the results provide preliminary evidence that a stronger relationship between catastrophizing and depression may be present in children who exhibit elevated levels of both anxious and depressive symptoms than those who do exhibit this combination of symptoms; however, due to the poor correlation between the two measures of catastrophizing, and the low internal consistency within each measure of catastrophizing in the seventh-grade sample, this study demonstrates support for two conclusions: (1) catastrophizing predicts depressive symptoms in young children and (2) there is a trend suggesting that catastrophizing may be a stronger predictor of depressive symptoms in children who exhibit elevated levels of both anxious and depressive

symptoms than in children who do not. These results cannot provide conclusive evidence for the generalizability of hopelessness theory to childhood depression. To provide a good appraisal of hopelessness theory's generalizability to childhood depression, a gold standard of catastrophizing would need to be defined, and from this gold standard, inventories that have been designed to measure catastrophizing need to be compared and modified if necessary. A timeframe for childhood needs to be established because the aspects of hopelessness theory that may be generalizable to adolescents may not necessarily be generalizable to children. Future studies should use multiple methods rather than multiple measures to measure catastrophizing, and incorporate interviews as a method to set a gold standard for the construct within the study in the event that a gold standard does not exist. More reliable instruments of measuring catastrophizing will elucidate our understanding of the relationship between the cognitive style of inferring catastrophic consequences of negative events and the development of depression in children.

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Appendix A

Demographic Information Sheet

## Demographic Information

Participant Number \_\_\_\_\_

1. What grade are you in? (circle one)    3<sup>rd</sup>                    5<sup>th</sup>                    7<sup>th</sup>
2. How old are you? \_\_\_\_\_
3. What month were you born? \_\_\_\_\_
4. What year were you born? \_\_\_\_\_
5. Circle which one you are.
  - a. Boy
  - b. Girl
6. Who do you live with?
  - a. I live mostly or only with my mom.
  - b. I live mostly or only with my dad.
  - c. I spend about the same time living with my mom and dad but they do not live together
  - d. I do not live with my mom or dad, but I live with \_\_\_\_\_
  - e. I live with my mom and dad together.
7. How many sisters do you have? (write 0 if you do not have any sisters) \_\_\_\_
8. How many brothers do you have? (write 0 if you do not have brothers) \_\_\_\_
9. Which of the following is your ethnic group
  - a. White
  - b. Black
  - c. East Asian (e.g. Chinese, Japanese, Korean)
  - d. South Asian (e.g. Indian, Pakistani, Sri Lankan)
  - e. Native (e.g. Inuit, Métis)
  - f. Mixed
  - g. Other \_\_\_\_\_
10. What do your parent's do (even if they do not work now)?
  - a. Father's type of work \_\_\_\_\_
  - b. Mother's type of work \_\_\_\_\_

Appendix B

Children's Cognitive Error Questionnaire - catastrophizing scale

Participant Number \_\_\_\_\_

**CCSQ-CONSEQUENCES**

Different kids think in different ways. We want to know how you think about some things that might happen to you.

This survey asks you a bunch of questions about what you think. Each question is a little story, and for each story, there are four ways you might react. You're supposed to choose one of the four ways, the one that's closest to the way you'd really feel if that particular thing happened to you. There are no wrong answers. Some kids are very different from one another. Each of the children in this study will be putting down something different.

Imagine that each of these stories happened to you, even if they never have. And then circle one of the four answers – the one that best describes the way you would feel. Please remember to circle just the letter A, B, C or D, not the whole sentence.

1. Your friend is mad at you.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
2. You gain a lot of weight and start to look fat.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
3. Your teacher scolds you for whispering in class.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
4. You break your mom's favourite dish.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.

5. You get into a fight with another kid.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
6. A grownup yells at you.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
7. You are studying for a math test and you get a practice problem wrong.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
8. You don't know the answer when the teacher calls on you.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
9. You are on stage in the school play and you forget your lines.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.

10. You fail a test.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
11. A team you are on loses a game.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.
  
12. Your teacher is mad at you because of your behaviour.
  - a. This won't cause other bad things to happen to me.
  - b. This might cause other bad things to happen to me.
  - c. This will cause other bad things to happen to me.
  - d. This will cause many terrible things to happen to me.

Appendix C

Children's Depression Inventory - hopelessness scale

## CDI

Kids sometimes have different feelings and ideas. This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, go on to the next group. There is no right or wrong answer. Just pick the sentence that best describes the way you have been recently. Put a mark next to your answer. Put the mark in the box next to the sentence that you pick. Here is an example of how this form works. Try it. Put a check mark (✓) next to the sentence that describes you best.

- (a)  I read books all the time  
 I read books once in a while  
 I never read books
- 

- 
1.  I am sad once in a while.  
 I am sad many times.  
 I am sad all the time.
2.  I feel like crying every day.  
 I feel like crying many days.  
 I feel like crying once in a while.
3.  I cannot make up my mind about things.  
 It is hard to make up my mind about things.  
 I make up my mind about things easily.
4.  I have to push myself all the time to do my schoolwork.  
 I have to push myself many times to do my schoolwork.  
 Doing schoolwork is not a big problem.
5.  I have trouble sleeping every night.  
 I have trouble sleeping many nights.  
 I sleep pretty well.

Please continue...

6.    \_\_\_\_\_ I am tired once in a while.  
      \_\_\_\_\_ I am tired many days.  
      \_\_\_\_\_ I am tired all the time.
7.    \_\_\_\_\_ I do not feel alone.  
      \_\_\_\_\_ I feel alone many times.  
      \_\_\_\_\_ I feel alone all the time.
8.    \_\_\_\_\_ I have plenty of friends.  
      \_\_\_\_\_ I have some friends but I wish I had more.  
      \_\_\_\_\_ I do not have any friends.
9.    \_\_\_\_\_ Nobody really loves me.  
      \_\_\_\_\_ I am not sure if anybody loves me.  
      \_\_\_\_\_ I am sure that somebody loves me.

Appendix D

Centre for Epidemiological Studies Depression Scale for Children

CES-DC

Participant Number \_\_\_\_\_

**INSTRUCTIONS**

Below is a list of the ways you might have felt or acted. Please check how *much* you have felt this way during the *past week*.

**DURING THE PAST WEEK**

**Not at all      A little      Some      A Lot**

1. I was bothered by things that usually don't bother me.

2. I did not feel like eating, I wasn't very hungry.

3. I wasn't able to feel happy, even when my family or friends tried to help me feel better.

4. I felt like I was just as good as other kids.

5. I felt like I couldn't pay attention to what I was doing.

**DURING THE PAST WEEK**

**Not at all      A little      Some      A Lot**

6. I felt down and unhappy.

7. I felt like I was too tired to do things.

8. I felt like something good was going to happen.

9. I felt like things I did before didn't work out right.

10. I felt scared.

**DURING THE PAST WEEK**

**Not at all      A little      Some      A Lot**

11. I didn't sleep as well as I usually sleep.

12. I was happy.

13. I was more quiet than usual.

14. I felt lonely, like I didn't have any friends.

15. I felt like kids I know were not friendly or that they didn't want to be with me.

**DURING THE PAST WEEK**

**Not at all      A little      Some      A Lot**

16. I had a good time.

17. I felt like crying.

18. I felt sad.

19. I felt people didn't like me.

20. It was hard to get started doing things.

Appendix E

Children's Negative Cognitive Error Questionnaire

Instructions

Participant Number \_\_\_\_\_

This questionnaire describes a number of situations that might happen to kids. Each situation is followed by a thought that a kid in that situation might have. This thought is in "quotation marks". We want to know how similar that thought is to what you might think in that situation.

Please read each situation and imagine that it is happening to you, even if it never has in the past. Then read the thought which is in "quotations". Circle the statement underneath each thought that best describes how similar that thought is to how you would think in that situation.

As an example let's read this:

- A. You are the goalie for you soccer team. The game ends in a 1-1 tie. After the game you hear one of your teammates say that your team should have won today. You think, "He/She thinks it's my fault we didn't win."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

If the thought ("He/She thinks it's my fault we didn't win.") was somewhat like the way you would think in that situation, you would circle:

somewhat like  
I would think

- B. You see two of your friends talking together at recess. As you walk towards them, they go over to the softball field and start playing catch. You think, "Maybe they're mad at me about something."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

If the thought ("Maybe they're mad at me about something.") was a lot like they way you would think in that situation, you would circle:

a lot like I  
would think

- 1) You invite one of your friends to stay overnight at your house. Another one of your friends finds out about it. You think, "He/She will be real mad at me for not asking them and never want to be friends again."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 2) Your class is having 4-person relay races in gym class. Your team loses. You think, "If I had just been faster we would not have lost."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 3) You are trying out for the school softball team. You get up four times and get two hits and make two outs. You think, "What a lousy practice I had."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 4) Your team loses a spelling contest. The other team won easily. You think, "If I were smarter, we wouldn't have lost."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 5) Some of your friends have asked you if you're going to try out for the school soccer team. You tried out last year but did not make it. You think, "What's the use of trying out, I couldn't make it last year."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 6) You call one of the kids in your class to talk about your math homework. He/She says, "I can't talk to you now, my father needs to use the phone." You think, "They didn't want to talk to me."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 7) You and three other students completed a group science project. Your teacher did not think it was very good and gave your group a poor grade. You think, "If I hadn't done such a lousy job, we would have gotten a good grade."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 8) Whenever it is someone's birthday in your class, the teacher lets that student have a half hour of free time to play a game with another student. Last week it was one of your friend's birthday and they picked someone else. Now another of your friends is going to get to choose someone. You think, "they probably won't pick me either."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 9) Your softball team is having practice. The coach tells you he would like to talk to you after practice. You think, "He's not happy with how I'm doing and doesn't

want me on the team anymore.”

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 10) You went to a party with one of your friends. When you first got there your friend hung around with some other kids instead of you. Later you and your friend decide to stop at his/her house for a snack before you go home. Later that night you think, “My friend didn’t seem to want to hang around with me tonight.”

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 11) You forgot to do your spelling homework. Your teacher tells the class to hand them in. You think, “The teacher is going to think I don’t care and I won’t pass.”

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 12) You were having a good day in school up until the last period when you had a math quiz. You did poorly on the quiz. You think, “School is a drag, what a waste of time.”

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 13) You play basketball and score 5 baskets but missed two real easy shots. After the game you think, “I played poorly.”

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 14) Last week you had a history test and forgot some of the things you had read. Today you are having a math test and the teacher is passing out the test. You think, "I'll probably forget what I studied just like last week."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 15) You spent the day at your friend's house. The last hour before leaving you were really bored. You think, "Today was no fun."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 16) You are taking skiing lessons. The instructor tells the class that he does not think people are ready for the steep trails yet. You think, "If I could only learn to ski faster, I wouldn't be holding everyone up."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
---	-----------------------------	--------------------------------	--	----------------------------------

- 17) Your class is starting a new unit in math. The last one was really hard. When it's time for math class you think, "That last stuff was so hard I just know I'm going to have trouble with this too."

This thought is:

almost exactly	a lot like I	somewhat like	only a little	not at all like I
----------------	--------------	---------------	---------------	-------------------

like I would think	would think	I would think	like I would think	would think
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- 18) You just started a part-time job helping one of your neighbours. Twice this week you were not able to go skating with your friends because of having to work. As you see your friends leaving to do skating, you think, "Pretty soon they won't ever want to do anything with me."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
-----------------------------------	--------------------------	-----------------------------	----------------------------------	-------------------------------

- 19) Last week one of the kids in your class had a party and you weren't invited. This past week you heard another student in your class telling someone he was thinking of getting some kids together to go to a movie. You think, "It'll be just like last week, I won't be asked to go."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
-----------------------------------	--------------------------	-----------------------------	----------------------------------	-------------------------------

- 20) You did an extra credit assignment. Your teacher tells you that he would like to talk to you about it. You think, "He thinks I did a lousy job on my assignment and is going to give me a bad grade."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
-----------------------------------	--------------------------	-----------------------------	----------------------------------	-------------------------------

- 21) You're with two of your friends. You ask if they would like to go to a movie this weekend. They both say they can't. You think, "They probably just don't want to go with me."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
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- 22) Your cousin calls you to ask if you'd like to go on a long bike ride. You think, "I probably won't be able to keep up and people will make fun of me."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
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- 23) Your team has just lost in a spelling contest. You were the last one up for your team and had spelled four words right. The last word was "excellent" and you got it wrong. When you sit down you think, "I'm no good at spelling."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
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- 24) Last week you played softball and struck out twice. Today some kids from your class ask you to play soccer. You think, "There's no sense playing, I'm no good at sports."

This thought is:

almost exactly like I would think	a lot like I would think	somewhat like I would think	only a little like I would think	not at all like I would think
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Appendix F

Revised Child Anxiety and Depression Scale

## RCADS

Participant Number \_\_\_\_\_

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

- |   |       |           |       |        |
|---|-------|-----------|-------|--------|
| 1. I worry about things.  | Never | Sometimes | Often | Always |
| 2. I feel sad or empty.   | Never | Sometimes | Often | Always |
| 3. When I have a problem, I get a funny feeling in my stomach.  | Never | Sometimes | Often | Always |
| 4. I worry when I think I have done poorly at something.  | Never | Sometimes | Often | Always |
| 5. I would feel afraid of being on my own at home.  | Never | Sometimes | Often | Always |
| 6. Nothing is much fun anymore.   | Never | Sometimes | Often | Always |
| 7. I feel scared when I have to take a test.  | Never | Sometimes | Often | Always |
| 8. I feel worried when I think someone is angry with me.  | Never | Sometimes | Often | Always |
| 9. I worry about being away from my parents.  | Never | Sometimes | Often | Always |
| 10. I get bothered by bad or silly thoughts or pictures in my mind.                                       | Never | Sometimes | Often | Always |
| 11. I have trouble sleeping.  | Never | Sometimes | Often | Always |
| 12. I worry that I will do badly at my school work.   | Never | Sometimes | Often | Always |
| 13. I worry that something awful will happen to someone in my family.                                     | Never | Sometimes | Often | Always |
| 14. I suddenly feel as if I can't breathe when there is no reason for this.                               | Never | Sometimes | Often | Always |
| 15. I have problems with my appetite.   | Never | Sometimes | Often | Always |
| 16. I have to keep checking that I have done things right (like the switch is off, or the door is locked) | Never | Sometimes | Often | Always |

17.	I feel scared if I have to sleep on my own.	Never	Sometimes	Often	Always
18.	I have trouble going to school in the mornings because I feel nervous or afraid.	Never	Sometimes	Often	Always
19.	I have no energy for things.	Never	Sometimes	Often	Always
20.	I worry I might look foolish.	Never	Sometimes	Often	Always
21.	I am tired a lot.	Never	Sometimes	Often	Always
22.	I worry that bad things will happen to me.	Never	Sometimes	Often	Always
23.	I can't seem to get bad or silly thoughts out of my head.	Never	Sometimes	Often	Always
24.	When I have a problem, my heart beats really fast.	Never	Sometimes	Often	Always
25.	I cannot think clearly.	Never	Sometimes	Often	Always
26.	I suddenly start to tremble or shake when there is no reason for this.	Never	Sometimes	Often	Always
27.	I worry that something bad will happen to me.	Never	Sometimes	Often	Always
28.	When I have a problem, I feel shaky.	Never	Sometimes	Often	Always
29.	I feel worthless.	Never	Sometimes	Often	Always
30.	I worry about making mistakes.	Never	Sometimes	Often	Always
31.	I have to think of special thoughts (like numbers or words) to stop bad things from happening.	Never	Sometimes	Often	Always
32.	I worry what other people think of me.	Never	Sometimes	Often	Always
33.	I am afraid of being in crowded places (like shopping centers, the movies, buses, busy playgrounds).	Never	Sometimes	Often	Always
34.	All of a sudden, I feel really scared for no reason at all.	Never	Sometimes	Often	Always
35.	I worry about what is going to happen.	Never	Sometimes	Often	Always
36.	I suddenly become dizzy or faint when	Never	Sometimes	Often	Always

	there is no reason for this.				
37.	I think about death.	Never	Sometimes	Often	Always
38.	I feel afraid if I have to talk in front of my class.	Never	Sometimes	Often	Always
39.	My heart suddenly starts to beat too quickly for no reason.	Never	Sometimes	Often	Always
40.	I feel like I don't want to move.	Never	Sometimes	Often	Always
41.	I worry that I will suddenly get a scared feeling when there is nothing to be afraid of.	Never	Sometimes	Often	Always
42.	I have to do some things over and over again (like washing my hands, cleaning or putting things in a certain order).	Never	Sometimes	Often	Always
43.	I feel afraid that I will make a fool of myself in front of people.	Never	Sometimes	Often	Always
44.	I have to do some things in just the right way to stop bad things from happening.	Never	Sometimes	Often	Always
45.	I worry when I go to bed at night.	Never	Sometimes	Often	Always
46.	I would feel scared if I had to stay away from home overnight.	Never	Sometimes	Often	Always
47.	I feel restless	Never	Sometimes	Often	Always

Appendix G

Human Investigation Committee Ethics Approval Letter



November 19, 2008

**Reference #08.121**

Ms. Valeric Noël  
C/o Dr. Sara Francis  
Psychology Department  
Science Building  
Memorial University

Dear Ms. Noël:

RE: "Catastrophizing: A predictor of depressive symptoms in children"

This will acknowledge receipt of your correspondence, dated November 3, 2008

This correspondence has been reviewed by the co-chair under the direction of the Committee **Full approval** of this research study has been granted for one year effective October 20, 2008.

This is to confirm that the Human Investigation Committee reviewed and approved or acknowledged the following documents (as indicated):

- *Revised consent form, approved*

This approval will lapse on **October 20, 2009**. It is your responsibility to ensure that the Ethics Renewal form is forwarded to the HIC office prior to the renewal date. *The information provided in this form must be current to the time of submission and submitted to HIC not less than 30 nor more than 45 days of the anniversary of your approval date.* The Ethics Renewal form can be downloaded from the HIC website <http://www.med.mun.ca/hic/downloads/Annual%20Update%20Form.doc>

*The Human Investigation Committee advises THAT IF YOU DO NOT return the completed Ethics Renewal form prior to date of renewal:*

- *Your ethics approval will lapse*
- *You will be required to stop research activity immediately*
- *You may not be permitted to restart the study until you reapply for and receive approval to undertake the study again*

*Lapse in ethics approval may result in interruption or termination of funding*

Ms. V. Noel  
Reference # 08.121  
November 19, 2008

Page 2

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For a hospital-based study, it is **your responsibility to seek the necessary approval from Eastern Health and/or other hospital boards as appropriate.**

**Modifications of the protocol/consent are not permitted without prior approval from the Human Investigation Committee. Implementing changes in the protocol/consent without HIC approval may result in the approval of your research study being revoked, necessitating cessation of all related research activity. Request for modification to the protocol/consent must be outlined on an amendment form (available on the HIC website) and submitted to the HIC for review.**

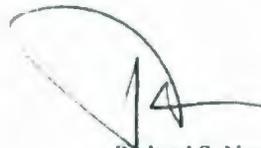
This research ethics board (the HIC) has reviewed and approved the research protocol and documentation as noted above for the study which is to be conducted by you as the qualified investigator named above at the specified site. This approval and the views of this Research Ethics Board have been documented in writing. In addition, please be advised that the Human Investigation Committee currently operates according to *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* and applicable laws and regulations. The membership of this research ethics board is constituted in compliance with the membership requirements for research ethics boards as per these guidelines.

Notwithstanding the approval of the HIC, the primary responsibility for the ethical conduct of the investigation remains with you.

We wish you every success with your study.

Sincerely,

Fern Brunger, PhD  
Co-Chair  
Human Investigation Committee



Richard S. Neuman, PhD  
Co-Chair  
Human Investigation Committee

C C Dr. C. Loomis, c/o Office of Research, MUN  
Mr. W. Miller, c/o Patient Research Centre, Eastern Health  
HIC meeting date: December 4, 2008

Appendix H

Eastern School District Ethics Approval Letter



*Office of the Assistant Director  
Rural Education and Corporate Services  
Dr. Albert Trask*

*Telephone: 709-758-2341*

December 5, 2008

Ms. Valerie Noel  
Psychology Department  
Memorial University of Newfoundland  
St. John's, NL  
A1B 3X9

Dear Ms. Noel:

**RE: Research Request – Catastrophizing: A Predictor of Depressive Symptoms in Children.**

Thank you for your correspondence dated December 1, 2008 requesting to conduct research within the Eastern School District.

Please be advised that permission has been granted to conduct your research study.

For your information we are enclosing a copy of our policy on research studies and surveys. It is the expectation of the Eastern School District that the requirements of this policy be strictly adhered to during the conduct of the research.

Thank you for involving Eastern School District in what appears to be a very worthwhile study. Our District looks forward to receiving a copy of the results of your study.

Please feel free to contact this office should you have further questions.

Sincerely,



**Dr. Albert Trask**  
Assistant Director  
Rural Education and Corporate Services

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*Suite 601, Atlantic Place, 215 Water Street  
Box 64-66, St. John's, NL A1C 6C9*

*Chairperson: Milton Peach  
C.E.O./Director of Education: Darrin Pike, M.Ed.*

*Telephone: 709-758-2341  
Facsimile: 709-758-2387*





