EXPLORING THE RELATIONSHIPS AMONG ATTACHMENT, EMOTION REGULATION, DIFFERENTIATION OF SELF, NEGATIVE PROBLEM ORIENTATION, SELF-ESTEEM, WORRY AND GENERALIZED ANXIETY

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
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ABSTRACT

This study attempted to provide preliminary empirical support for an emerging model of generalized anxiety disorder (GAD) stemming from an emotion-focused therapy (EFT) perspective, which views GAD as reflecting negative self-organizations and emotion dysregulation as a function of attachment injuries (Watson & Greenberg, in press). It has done so by examining negative early attachment experiences and attachment styles, as representing attachment injuries; differentiation of self, negative problem orientation, and self-esteem, as representing negative self-organization; and emotion dysregulation, and by investigating the relationships among these variables and their contribution to generalized anxiety and worry. Following on suggestion of previous research (Ruscio, 2002; Ruscio & Borkovec, 2004; Ruscio et al., 2001) indicating that worry, while characteristic of GAD, exists independently of GAD and therefore would benefit from being studied in its own right, this study examined worry and generalized anxiety separately. Cross-sectional data was collected from 218 participants who completed self-report questionnaires assessing demographics and variables of interest. Results indicated that negative early attachment experiences are significantly and positively related to generalized anxiety and worry. Findings from correlational analysis demonstrated that negative early experiences with fathers were associated with worry in adulthood whereas negative early experiences with both parents as well as perceptions of unfair family interactions were related to
generalized anxiety symptoms. Multiple mediation analysis using PROCESS (Hayes, 2012) revealed a different pattern of mediation for insecure adult attachment and worry than for insecure adult attachment and generalized anxiety. Negative problem orientation and differentiation of self mediated the relationship between insecure adult attachment and worry, whereas negative problem orientation and self-esteem mediated the relationship between insecure adult attachment and generalized anxiety. Implications of these findings for the understanding of GAD are discussed.
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Chapter 1: Literature Review

Introduction

Since the publication of the revision of the third edition of the Diagnostic and Statistical Manual of Mental Disorders (i.e., DSM-III-R; American Psychological Association [APA], 1987) in which the status of generalized anxiety disorder (GAD) changed from that of a residual category to that of a discrete diagnostic category, the psychological literature on GAD has grown substantially (Heimberg, Turk, & Mennin, 2004). While still a relatively new diagnosis, GAD is now recognized as a widely prevalent disorder associated with significant functional impairment and high utilization of mental health services (Hoffman, Dukes, Wittchen, 2008; Kessler, Walters, Wittchen, 2004). A growing body of empirical studies and other theoretical papers have now emerged and have begun to create a more stable foundation of theory and knowledge regarding the nature of this disorder (Howa & Antony, 2008). Much of this work has originated within the cognitive school of psychology and has focused on the study of worry, which is an essential feature of GAD (Aikins & Craske, 2001; Behar, DiMarco, Hekler, Mohlman, Staples, 2009).

Several cognitive models of worry have been proposed in the past few years and have greatly advanced the understanding of GAD (Borkovec, Alcaine, & Behar, 2004; Dugas & Robichaud 2007; Mennin, 2004; Newman & Llera 2011; Wells 2006). For the most part, these models have converged on the notion that worry is a strategy used to regulate individuals away from emotional distress but which directly contributes to anxiety. These models have identified a number of faulty cognitive processes associated with worry, such as negative beliefs about problems-solving abilities (Davey, 1994; Dugas, Freeston, & Ladouceur, 1997), metacognitive
beliefs about the detrimental nature of worry (i.e., worrying about worry; Wells, 2006), and intolerance of uncertainty (Dugas & Robichaud, 2007). Previous research has also highlighted different emotion regulation deficits that help explain the use of worry as a strategy for coping with emotional distress, such as difficulty experiencing and understanding intense emotions (Mennin, Heimberg, Turk, & Fresco, 2002, 2005; Newman & Llera, 2011, 2014). In addition, research has identified interpersonal deficits among chronic worriers, such as higher levels of rigidity and distress in interpersonal relationships as compared to non-anxious individuals (Newman, 2000; Roemer, Orsillo, & Barlow, 2002).

Empirical attention has been largely dedicated to the study of dysfunctional beliefs and emotion and interpersonal deficits outlined in separate existing models of worry. However, attempts have been made to integrate cognitive, emotion, and interpersonal correlates of worry across models in efforts of improving the understanding and, most importantly, treatment of GAD (Newman, Castonguay, Borkovec, & Molnar, 2004; Roemer & Orsillo, 2014). In fact, some researchers have pointed out that more integrative as well as non-cognitive-behavioral theoretical frameworks are needed to inform health care policy on the most appropriate forms of psychological interventions in treating GAD (Cassidy, 2005, 2009; Hunot, Churchil, Teixeira, Silva de Lima, 2007; Rapee, 1991).

One such integrative model of worry and GAD is the emerging work by Watson and colleagues (Watson & Goldman, 2012; Watson & Greenberg, 2015, in press; Watson, 2015). These investigators have recently developed an elegant, comprehensive theory of the protective role of worry in GAD from an emotion-focused perspective. The authors propose that worry represents a misguided attempt of the individual to protect his or her negative self-organization
against overwhelming distress resulting from the activation of painful maladaptive emotion schemes based on early insecure attachment experiences.

Watson and colleagues (Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) place the concepts of negative self-organization and emotion dysregulation at the heart of GAD and worry. Negative self-organization refers to individuals’ experience of themselves as vulnerable, weak and at risk in their interactions with others and the world. Emotion dysregulation refers to individuals’ inability to self-sooth or access adequate protection or succor to regulate their emotions as they feel distressed. Both negative self-organizations and emotion dysregulation are believed to originate from repeated early attachment injuries. These injuries are viewed as leading to the development of maladaptive emotion schemes which construct the self in a vulnerable fashion, thus cuing feelings of distress when activated. In light of a vulnerable self-organization and in the absence of adequate emotion regulation capacities, this distress overwhelms the individual who then relies on worry to protect the self from shattering in the face of emotional pain.

Given its recent formulation, no empirical study has yet directly investigated the propositions of the emotion-focused perspective on worry. However, because this perspective shares some attributes with existing models of worry, such as seeing worry as an effort to cope with difficult emotions, it has found indirect support from research findings showing that people diagnosed with GAD and chronic worry have difficulty regulating emotions (Craske & Waters, 2005; Mennin et al., 2002, 2005). In addition, this perspective has found to be consistent with other findings from attachment research highlighting the associations of GAD and chronic worry with insecure attachment (Cassidy 1995, 2009). That said, no study to date has proposed to examine the concepts emphasized in the emotion-focused formulation of worry and GAD in a
more direct way, such as investigating the relationships among insecure attachment experiences, negative self-organizations, and impaired emotion regulation among individuals with GAD.

The main purpose of this dissertation is to study the ideas articulated by the emotion-focused perspective on GAD and worry. In order to do that, this study operationalized some of the concepts of this perspective by focusing on early attachment experiences and attachment styles as reflecting aspects of emotion schematic memories and attachment injuries; low differentiation of self, low self-esteem, and negative problem orientation as reflecting aspects of a negative self-organization and vulnerable sense of self; and affect dysregulation, and it sought to examine the relationships among these variables and their contributions to both GAD and worry. This study hypothesized that the concepts reflecting a negative self organization (i.e., low differentiation of self, low self-esteem, and negative problem orientation) and emotion dyregulation would mediate the relationships between insecure attachment and worry as well as insecure attachment and GAD.

It is important to comment here that this study examined worry and GAD separately. The reason for this comes from a growing body of research demonstrating that excessive worry, while characteristic of GAD, also exists independently of GAD (Hirsch, Mathews, Lequertier, Perman, & Hayes, 2013; Ruscio, 2002; Ruscio & Borkovec, 2004; Ruscio et al., 2001). These authors argue that the nature of worry outside the context of GAD is still poorly understood and understudied. They recommend that worry be studied in its own right so that researchers can have a clearer picture of the features that distinguish the GAD presentation of worry and anxiety from normal variants of these processes. As such, this dissertation examined GAD and worry apart and tried to understand the factors that contribute to each independently and to both jointly.
In the next sections a literature review on GAD and worry is provided. This review presents the definition of worry and prevailing theoretical models of worry and GAD. Following this review, an argument for the role of attachment injuries on the development of worry and GAD is presented. Next, a review of psychological constructs reflecting aspects of a negative self-organization (i.e., low differentiation of self, low self-esteem, and negative problem orientation) as well as emotion dysregulation is provided and the link between these constructs and insecure attachment presented. The hypotheses for this study are presented thereafter. Findings from this study are presented and discussed from an emotion-focused perspective on worry and GAD.

**GAD**

GAD is characterized by excessive and uncontrollable worry occurring more days than not for at least six months (APA, 2013). The most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (i.e., DSM-5) adds that worrying in GAD is also pervasive – the worry is about a number of events and activities – and it is associated with at least three of the following symptoms: restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbance. Moreover, worrying in GAD is not better explained by another mental health disorder or attributable to a medical condition or the physiological effects of a substance. Additionally, the worrying in GAD leads to significant subjective distress and related impairments in social, occupational, and other important areas of the individual’s functioning (APA, 2013).

Epidemiological studies have placed the one-year prevalence of GAD in the Canadian population at 1.1% (Public Health Agency of Canada, 2002). GAD has been associated with long-term impairment, interpersonal difficulties, and health concerns (Waters & Craske, 2005).
is also highly comorbid with major depression and other anxiety disorders, such as panic
disorder and social phobia (Kessler, Walters, & Wittchen, 2004). This comorbidity is in turn
associated with greater functional impairment and health care use and cost (Hoffman et al., 2008;
found that GAD is associated with interpersonal problems even after the overlap with depressive
symptoms has been statistically controlled. GAD has been identified as one of the most difficult
disorders to understand and to treat, remaining one of the least successfully treated anxiety
disorders (Brown, Barlow, & Liebowitz, 1994; Roemer, Orsillo, Barlow, 2002; Waters &

Research has shown that about half of GAD patients receiving a course of cognitive-
behavioural therapy – the standard treatment for anxiety disorders – maintain high end-state
functioning at one-year follow-up (Borkovec, Newman, Pincus, & Lytle, 2002; Hanrahan, Field,
Jones, & Davey, 2013). One of the greatest difficulties in the treatment of GAD, relative to other
anxiety disorders, is believed to lie in the fact that worrying in GAD cannot be reliably tied to a
specific target of fear and anxiety (Roemer & Orsillo, 2005). Borkovec and colleagues
(Borkovec et al., 2002) argue that because the content of worry in GAD is diffuse, ever-
changing, and based on future-oriented apprehension in the absence of specific threat, it does not
lend itself as well to exposure therapy as other anxiety disorders. In addition, because worry in
GAD covers a wide-range of topics, it does not subject itself well to traditional cognitive
techniques, such as cognitive restructuring (Roemer & Orsillo, 2005; Mennin et al., 2004).

Although GAD is conceptualized as a discrete disorder whose symptoms are either
present or absent, Kertz and colleagues (Kertz et al., 2014) argue that it is best understood as a
dimensional construct. In their recent study investigating the latent structure of both worry and
generalized anxiety in a diagnostically diverse clinical sample and using three taxometric procedures, they found that a dimensional rather than categorical structure for both constructs provided the best fit for their data. This finding indicates that ratings of worry or symptom severity may be more useful in addressing worry and GAD. The authors add that their finding has important implications for conceptualization models of worry and GAD because dimensional constructs are “best explained by additive models in which various factors interact to explain increasing or decreasing symptom severity along a continuum” (p. 13). In later sections, potential explanatory factors of excessive worry will be discussed.

**Worry**

Much of the theory and research on GAD has focused on one of its essential features, worry. Borkovec and colleagues (Borkovec, Robison, Pruzinsky, & Depree, 1983) were one of the first researchers to study worry in its own right (independent from anxiety) and to provide a formal definition of worry. They defined worry as “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable [which] represents attempts by the individual to engage in mental problem-solving on issues whose outcomes are uncertain” (p.10). Borkovec (1994) has extended this definition by stating that worry is predominantly a thought activity and is primarily verbal-linguistic in nature. Several researchers have found support for that position, noting that individuals report that their worries are predominantly composed of thoughts as compared to images (Freeston, Dugas, & Ladouceur, 1996; Tallis, Davey, & Capuzzo, 1994). Freeston and colleagues (Freeston et al., 1996) found in a sample of 502 individuals that worry consists of approximately 70% thoughts and 30% images. They also found that excessive worriers reported a greater percentage of thoughts in their worries in comparison to ordinary worriers. Borkovec
and colleagues (Borkovec, 1994; Borkovec, Ray, & Stöber, 1998) explain that when individuals worry, they talk to themselves about negative things that they are afraid might happen in the future and verbally consider ways to cope with those situations. Worry thus appears to consist of mostly verbal thought activity centered on an anxious apprehension of negative future outcomes (Borkovec et al., 2004; Barlow, 2002).

Researchers (Borkovec et al., 2004; Stöber, 1998; Stöber, Tepperwien, & Staak, 2000; Tucker & Newman, 1981) argue that worry involves the processing of anxiety-provoking information at a conceptual but also abstract level. Borkovec (1985) explains that worry consists largely of “what if” statements representing attempts at problem-solving which are not necessarily accompanied by conceptual elaboration or further action on how to actually solve problems. Stöber and colleagues (1998, 2000; Stöber & Borkovec, 2002) state that worrisome thoughts are uncertain and unclear in nature, consisting of words and sentences characterized by reduced concreteness. They argue that fearful imagery is indeed associated with worrisome processes; however, because worrisome thoughts are verbally abstract, the fearful imagery associated with them are reduced and less vivid. Borkovec and colleagues (Borkovec et al., 2004; Borkovec et al., 1998) suggest that this is one of the main mechanisms by which worry is reinforced and maintained. They argue that while on the one hand worrisome thoughts can prime images of feared events, their lack of verbal concreteness allows individuals to avoid activation of more vivid and thus emotionally distressing imagery.

Empirical evidence has shown that high levels of worry is also associated with information processing biases (Cassidy, 1995; Hayes & Hirsch, 2007; MacLeod & Rutherford, 2004). Specifically, research on individuals with GAD has revealed that high worry is related to attentional bias favoring encoding of threatening stimuli and to interpretative bias favoring
threatening meaning of ambiguous information (Hayes & Hirsch, 2007). One common method for examining attentional bias is the “Emotional Stroop Task” where individuals are presented with words with different emotional valence (e.g., threatening words and non-threatening words), displayed in different colors, and are required to name the colour of each word while ignoring its content. Studies have found that GAD individuals are significantly slower to colour-name threat related words, suggesting that their attention gets disrupted by the threatening content of words (Hayes & Hirsch, 2007; MacLeod & Rutherford, 2004; Oates, Siegle, & Ray, 2011).

Another common task for assessing attentional bias is the “Dot-probe Task” in which individuals are simultaneously shown on a computer screen pairs of words (e.g., one threatening word and one neutral word) followed by a blank screen with a dot in the previous location of one of the words (Hayes & Hirsch, 2007). Studies have found that GAD individuals have faster reaction times than normal controls to dots that replaced threatening versus neutral words (Hayes & Hirsch, 2007). This finding suggest that GAD individuals preferentially attend to threatening stimuli, consistent with an attentional vigilance for threat. With respect to studies examining interpretative bias on worry, it has been found that when individuals listen to threat-related and neutral homophones (e.g., “slay/sleigh”) or to ambiguous sentences that could be interpreted in either a threatening or non-threatening manner, GAD individuals are more likely than non-anxious controls to produce threat-related spelling of homophones and to endorse threat interpretations to ambiguous sentence (Cassidy, 1995; Hayes & Hirsch, 2007; MacLeod & Rutherford, 2004). These findings are consistent with a threatening interpretation bias.

Recently, attempts have been made to elucidate the latent structure of worry. A growing body of research (Kertz, McHugh, Lee, & Bjorgvinsson, 2014; Olatunji, Broman-Fulks,
Bergman, Green, & Zlomke, 2010; Ruscio, Borkovec, & Ruscio, 2001) suggests that worry involves a dimensional structure in which normal and pathological worry fall on opposite ends of the same continuum. In two recent taxometric studies in a community sample of 1507 individuals and a college sample of 1220 students, Olatunji and colleagues (Olatunji et al., 2010) found that the heterogeneity of worry (i.e., normal versus pathological) is best understood as reflecting quantitative rather than qualitative differences among individuals. After examining evidence from three taxometric methods, they concluded that worry does not demarcate a discrete taxon but rather occurs to a greater or lesser extent in all people (Olatunji et al., 2010).

Worry thus reflects a normal human experience – aimed at mobilizing problem solving – which can turn into a disturbance when it becomes excessive, uncontrollable and chronically present (Borkovec et al., 1998).

Other empirical research on the occurrence and phenomenology of worry has focused on comparing the frequency and content of worry between individuals with GAD and non-GAD individuals (Holaway, Rodebaugh, & Heimberg, 2006). Studies have found that there are similarities between normal worry and worry associated with GAD. For instance, the content of worry appears to be similar across individuals, such that both GAD individuals and controls identify family and interpersonal issues as common worry topics (Borkovec, Shadick & Hopkins, 1991; Kertz et al., 2014; Roemer, Molina, & Borkovec, 1997). In addition, duration of worry episodes, aversion to worry, anxiety associated with resisting worry, and perceived likelihood of worrisome outcomes have not been found to differ significantly between individuals with GAD and non-GAD individuals (Craske, Rapee, Jackel, & Barlow, 1989). Despite these similarities, however, these same studies and others have found that a few distinctions can be made between normal and pathological worry. For the most part, pathological worry can be defined as
excessive, pervasive, more unrealistic, and more uncontrollable compared to normal worry (Mennin, Heimberg, & Turk, 2004). Research findings indicate that individuals with GAD worry more frequently (Craske et al., 1989; Hirsh, Mathews, Lequertier, Perman, & Hayes, 2013), worry about a wide range of topics as well as more miscellaneous topics (e.g., minor matters, punctuality, home repairs; Borkovec et al., 1991; Hirsh et al., 2013), and find their worries more difficult to control (Craske et al., 1989; Hirsh et al., 2013) than nonanxious individuals.

Research has also attempted to investigate excessive worry outside the context of GAD (Hirsch, Mathews, Lequertier, Perman, & Hayes, 2013; Ruscio, 2002; Ruscio & Borkovec, 2004; Ruscio et al., 2001). For instance, Hirsch and colleagues (Hirsch et al., 2013) recently compared high worriers with and without a diagnosis of GAD and found that high worriers without GAD reported less negative beliefs about worry and had a greater ability to control the intrusion of distressing thoughts during a behavioural worry test than did high worriers meeting GAD diagnostic criteria. In addition, they found that high worriers without a GAD diagnosis reported a narrower range of worry topics and lower levels of anxious and depressed mood than did individuals with a GAD diagnosis.

These findings are similar to earlier work by Ruscio and colleagues (Ruscio, 2002; Ruscio & Borkovec, 2004; Ruscio et al., 2001) who found that high worriers without GAD endorsed all symptoms of GAD but in lesser severity than individuals meeting GAD criteria, even though they also reported their worry to be excessive and uncontrollable. Holaway and colleagues (Holaway et al., 2006) suggest that worry within the context of GAD may encompass additional factors to worry, such as different beliefs about worry and increased emotion dysregulation, which may help differentiate it from high worry without GAD. The authors state,
however, that the nature of high worry outside the context of GAD is still understudied and more research examining high worry independently of GAD is warranted.

Worry is also prevalent across several psychological disorders other than GAD, and hence is considered by many as a transdiagnostic construct (e.g., Harvey, Watkins, Mansell, & Shafran, 2004; Starcevic, Berle, Milicevic, Hannan, Lamplugh, & Eslick, 2007). Many forms of psychological dysfunction feature worry in their presentation, including depression, obsessive-compulsive, and anxiety disorders (e.g., social phobia and panic disorder). In some clinical presentations, worry may be confounded with other similar cognitive activities, such as in the case of depression where worry and rumination are intimately related due to their shared perseverative nature and negative content. Similarly, in obsessive-compulsive disorder there may be an overlap between worry and obsessions, given that both can be experienced as uncontrollable intrusive thoughts. In most cases, however, worry can be differentiated between GAD and other anxiety disorders on the basis that worry in anxiety disorders tends to be more content-specific in contrast to worry in GAD which tends to involve a wider range of topics (Hirsch et al., 2013; Starcevic, 2010). In addition, worry is typically viewed as an activity directed towards the future (i.e., anticipated threat) whereas other cognitive processes may be past-oriented and involve themes of past failures and losses (e.g., rumination; Papageorgiou, 2006) or be more imagery-like and ego-dystonic (e.g., obsessions; Starcevic, 2010).

**Theoretical Perspectives on GAD and Worry**

Significant advances have been made in the theoretical understanding of GAD and worry over the past two decades resulting in a number of models regarding the development and maintenance of GAD and worry (Aikins & Craske, 2001; Behar et al., 2009; Heimberg et al.,
2004; Rowa & Antony, 2008). This section reviews the prevailing models of GAD and worry found in the literature.

The Avoidance Model of Worry

Borkovec and colleagues (Borkovec, 1994; Borkovec, Alcaine, Behar, 2004; Sibrava & Borkovec, 2006) argue that worry functions as a cognitive avoidance strategy in response to perceived threats. According to the authors, worry allows individuals to mentally search for ways to avoid the occurrence of future perceived catastrophes and thereby avoid aversive images, autonomic arousal, and negative emotions associated with those threatening perceptions. Borkovec and colleagues offer a simple, evolutionary reasoning to support their model. They argue that because the perceived threat does not necessarily exist in the present moment for the individual, a flight-or-fight response is not available as an effective response to avoid that threat. Therefore, the individual is left with only mental strategies to avoid or cope with feared events. While engaged in worry, the individual is able to reduce somatic activation and emotional processing triggered by the perception of threat and thus negatively reinforce the process of worrying.

Borkovec and colleagues (Borkovec, 1994; Borkovec et al., 2004; Sibrava & Borkovec, 2006) assert that the immediate suppression of sympathetic reactions and experiencing of distressing emotions to anxiety-provoking material serve not only to negatively reinforce the worry process but also to strengthen the anxious meanings that those sympathetic reactions and distressing emotions have for the individual. Over the long-run, worry thus becomes pervasive and impairing. Given that access and exposure to threatening material is necessary for extinction or adaptive emotional processing of fear responses to take place, worry in the long-run interferes
with adaptive processing of distressing emotional material and thereby the individual continues being confronted with that material in the future. In addition, given that the meaning of autonomic reactions and distressing emotions get strengthened during the worrying process, the individual eventually experiences a more intense experience of anxiety as result of worry.

Part of Borkovec and colleagues’ theory (Borkovec, 1994; Borkovec, Alcaine, Behar, 2004; Sibrava & Borkovec, 2006) is based on the emotional processing theory of the maintenance and extinction of fear by Foa and Kozak (1989) which was based on Lang’s (1977, 1984, 1998) bioinformational model of emotion. Lang’s model is a network model of emotional structures in memory. It proposes that emotional structures are cognitive representations containing information about stimuli, responses (i.e., behavioral acts, physiological mobilization, and expressive language), and meaning information of emotional experiences (Lang, Cuthbert, & Bradley, 1998). Foa and Kosak (1986) distinguished between adaptive and maladaptive emotional structures with a particular focus on fear. They noted that in adaptive fear structures, associations between fear responses and meaning information reflect accurate representations of reality whereas in maladaptive structures those associations distort reality and include excessive response elements. They developed a theory of emotional processing in which the maladaptive associations among stimuli, responses and meaning in fear structures are replaced with more adaptive associations. They argue that for emotional processing to occur, fear structures need to be accessed and fully activated (with activation of imagery and physiological arousal) for new information to then disconfirm erroneous elements in those structures (Foa & Kosak, 1986).

Building on Foa and Kosak’s (1986) theory, Borkovec and colleagues (Borkovec, 1994; Borkovec et al., 2004; Sibrava & Borkovec, 2006) hypothesized that worry, as an abstract verbal-linguistic activity, functions to inhibit emotional processing by denying exposure to
aversive image and associated negative emotion and thus preventing individuals from fully activating their fear structures. The authors note that worry may initially appear effective at reducing anxious arousal arising from activation of aversive images; however, it comes at the high cost of adaptive emotional processing and extinction learning.

There are numerous studies that support the Avoidance Model of worry (see Sibrava & Borkovec, 2006; Borkovec et al., 2004). For example, Butler and colleagues (Butler, Wells, & Dewick, 1995) had participants watch a highly aversive film of a gruesome industrial accident. Participants were then instructed to verbally worry about the film, visualize images from the film, or simply “settle down.” The authors found that immediately after the task participants in the worry and control conditions experienced significant decreases in anxiety, whereas the imagery group remained anxious about the film. However, after three days of the study, participants in the worry condition experienced intrusive thoughts about the film more frequently than those in either the imagery or control conditions.

In another study examining the effects of worry and trauma recall among nonanxious individuals and individuals with GAD and posttraumatic stress disorder, Behar and colleagues (Behar, Zuellig, & Borkovec, 2005) found that worrying preceding an imagery-based trauma recall exercise lessened the subjective anxiety experienced by anxious participants during the exercise procedure. However, they found that trauma recall influenced the emotional experience of subsequent worrying, such that anxious individuals experienced greater anxiety during the worrying process if worry had preceded a trauma recall exercise. Altogether, these findings suggest that worry helps individuals avoid anxious arousal and negative affect associated with negative stimuli; however, the benefits of this avoidance appear to be limited, as worry later on reinforced the arousal of negative stimuli.
Additional support for the Avoidance Model come from laboratory studies demonstrating the association between worry and decreased physiological arousal. Several studies have shown that that anxious individuals who engaged in worrisome thinking prior to presentations of anxiety-provoking imagery experienced lower cardiovascular activity in response to the imagery as compared to individuals who engaged in either relaxed or neutral thinking (Bokovec & Hu, 1990; Bokovec, Lyonfields, Wiser, & Diehl, 1993; Pasley-Miklus & Vrana, 2000). Castaneda and Segerstrom (2004), for instance, have shown that high-worry phobic individuals experienced reduced physiological reactions to actual presentations of the phobic stimuli in comparison to low-worry phobics. Earlier observations by Hoehn-Saric and colleagues (Hoehn-Saric & McLeod, 1988; Hoehn-Saric et al., 1989) have also demonstrated that individuals with GAD have a restricted range of variability on measures of autonomic arousal such as skin conductance and heart rate.

In yet another study, Thayer, Friedman, and Borkovec (1996) investigated cardiovascular responses of individuals with GAD and non-anxious controls during baseline, relaxation, and worry conditions. These authors found that individuals with GAD demonstrated significantly lower heart rate variability than non-anxious controls across all three experimental conditions, suggesting that worry is related to deficits in vagal tone. Overall, these findings suggest that worry is characterized by sympathetic inhibition and autonomic inflexibility. Borkovec and colleagues (Borkovec et al., 1995) explain that worry mitigates physiological changes and thus lessens the perception of somatic activation and the intensity of emotions associated with that activation. They note that this lowered activation results in the rigidity of the individual’s autonomic functioning which then compromises their ability to flexibly respond to moment-to-moment demands in their environment. Friedman (2007) agrees with that position. He adds that
worry ultimately compromises an individual’s ability to organize their physiological responses and thus generate adaptive behavioral and emotional responses to perceived threatening situations.

Drawing from Borkovec’s (Borkovec, 1994; Borkovec et al., 2004) conceptualization of worry as a form of avoidance as well as the above mentioned research on the associations between worry and decreased physiological arousal, Roemer and Orsillo (2002) have argued that worry functions primarily to diminish internal distress. They assert that Borkovec’s avoidance conceptualization of worry manifests through two different mechanisms: (a) superstitious perceived avoidance of low-probability future negative events (or believing that worry reduces the likelihood of negative outcomes), and (b) through experiential avoidance, including both strategic and automatic avoidance of internal distress (e.g., worrying about minor matters to decrease sense of worthlessness). The authors argue that the most striking form of avoidance in GAD is experiential in that individuals with the disorder rely on worry strategically and/or automatically to avoid unpleasant internal experiences. They note, however, that worry itself eventually becomes an unwanted internal experience, prompting attempts to avoid it, which paradoxically then increase its frequency. They suggest that approaches that emphasize non-avoidance of internal experience (e.g., mindfulness techniques) are likely to reduce this negative spiral that characterizes GAD.

More recently, Newman and Llera (2010; 2011; Llera & Newman, 2014) refuted the findings of reduced physiological arousal associated with worry and proposed a modified version of the Avoidance Model, called the Contrast Avoidance Model. In their model, worry is viewed as a cognitive avoidance strategy in response to negative emotional contrasts rather than negative emotional arousal per se. Whereas Borkovec and colleagues posit that worry functions as a
means for managing negative emotional experience through the avoidance of internal emotional arousal, Newman and Llera argue that worry helps anxious individuals maintain a sustained negative internal arousal in order to then avoid increases in their negative emotions should negative events take place. For the authors, the avoidance of negative emotional contrasts (from baseline to negative) is what truly motivates anxious individuals to worry, as these individuals are theorized to have developed strong aversive reactions to and to be highly sensitive to negative emotional shifts in their experiences (Newman & Llera, 2011). Thus from this framework, worry functions as a cognitive rehearsing mechanism that serves to first induce negative emotional states in order to later facilitate the avoidance of sharp increases in negative arousal associated with perceptions of future threat.

Newman and Llera (2011) indicate that because research has focused primarily on the impact of worry on subsequent reactivity to exposure to emotions, it has concluded prematurely that worry enables emotional avoidance. However, their emerging research on the Contrast Avoidance Model and the experiential impact of worry itself, have shown that worry, in comparison to relaxation and neutral strategies, in fact boosted negative emotionality in GAD analogous and nonanxious individuals (Llera & Newman, 2010, 2014). Only when individuals were already experiencing negative arousal during worry tasks and were exposed to fear stimuli, did the authors find similar results to those reported in support of the Avoidance Model (Newman & Llera, 2014).

In a recent study, Newman and Llera (2014) randomly assigned participants to engage in worry, brief relaxation, or neutral inductions prior to sequential exposure to emotion-inducing (e.g., fear and sad) film clips. During worry, the authors found that participants (both with GAD and nonanxious) reported higher negative affect and marginally higher sympathetic arousal than
did participants assigned to the relaxation and neutral inductions. However, participants in the relaxation and neutral inductions groups experienced increased negative affect and stronger sympathetic activation than participants in the worry group in response to subsequent fear and sad film clips, whereas participants in the worry group did not experience greater contrasts. This finding suggests that worry may lead to heightened negative emotionality in order to then prevent further increase in arousal in the event of a stressor. The authors also found that GAD individuals in comparison to nonanxious individuals reported that preceding worry was more helpful than relaxation or neutral inductions in facilitating coping with the fearful or sad film clips. This suggests that participants with GAD were more bothered by the negative emotional contrasts than nonanxious individuals (Newman & Llera, 2014).

More research is still needed to replicate and confirm the tenets proposed by the Contrasts Avoidance Model and to identify precisely the avoidant properties of worry, including inconsistencies across studies on the physiological consequences of worry. By and large, however, research findings on worry appear to converge on the position that individuals use worry to avoid feeling vulnerable to negative or threatening experiences by dampening the full emotional processing of those experiences.

**Intolerance of Uncertainty Model**

Dugas and colleagues (Koerner & Dugas, 2006; Dugas, Buhr & Ladoucer, 2004; Dugas, Marchand, & Ladoucer, 2005) have proposed a model of GAD in which worry is largely driven and maintained by an individual’s tendency to react negatively to uncertain or ambiguous situations. The authors assert that individuals with GAD find uncertain or ambiguous situations stressful and upsetting. In addition, these individuals believe that worry can either help them cope with ambiguous or uncertain situations more effectively or prevent them from occurring
altogether. Dugas and colleagues argue that because many events and situations in life are characterized by ambiguity and uncertainty, individuals with a high disposition for intolerance of uncertainty disposition are susceptible to ongoing worry and anxiety.

Dugas and colleagues have found that individuals with GAD or GAD analogues have a lower threshold for uncertainty compared to nonanxious individuals and individuals with other anxiety disorders (Dugas et al., 2004, 2005). Specifically, they observed that individuals with GAD or GAD analogues have a heightened sensitivity to uncertainty-related information and tend to perceive uncertainty in threatening and unpleasant terms (Dugas et al., 2004, 2005). In a study using a gambling task to manipulate intolerance of uncertainty, Ladouceur and colleagues (Ladouceur et al., 2000) demonstrated that increases in intolerance of uncertainty led to increases in worrying. In another study examining GAD clients’ progress over the course of cognitive-behavioural therapy revealed that changes in clients’ levels of intolerance of uncertainty over the course of therapy preceded changes in the amount of worry they reported, but the reverse relationship (i.e., changes in worry preceding changes in intolerance of uncertainty) was not found. In yet another study examining the utility of a written exposure condition relative to a control writing condition, improvements in worry were found to be associated with preceding improvements in intolerance of uncertainty (Goldman, Dugas, Sexton, & Gervais, 2007). Overall, there appears to be growing evidence suggesting that intolerance of uncertainty may play a causal role in the development of worry in GAD.

**Metacognition Model of Worry**

Wells (1995, 2006) has proposed a metacognitive model of GAD that involves different beliefs about worry. Wells suggests that there are two distinctive types of worry – Type 1 and
Type 2 worrying. According to Wells, Type 1 worrying involves the positive metacognitive appraisal of worry as a coping strategy to cope with possible negative outcomes. It consists of a verbal contemplative process in which chains of catastrophizing and planning responses are processed in the mind. This form of worry is considered to be common and not necessarily pathological. Wells argues that by engaging in Type 1 worrying, individuals can contemplate negative outcomes and begin to generate coping strategies to prepare for stressful situations. He notes that although anxiety can arise from predicting negative outcomes, it eventually subsides once coping options are generated in the mind.

Alternatively, Type 2 worrying consists of the negative metacognitive appraisal of worry as uncontrollable and harmful to the individual. Type 2 worrying is generally activated when Type 1 worrying has not proved effective and a felt sense that the individual is able to cope with a particular stressor has not been achieved. In type 2 worrying, the individual believes that worrying is uncontrollable and/or dangerous for their well-being. In this case, the individual engages in negative meta-worry (i.e., negative interpretation of worry) in which the anxiety arising from worrying is negatively interpreted as a sign of loss of control or physical and/or psychological dysfunction. Wells argues that Type 2 worrying causes the individual to feel threatened by worry, leading to an increase in anxiety and further worrying.

Studies have demonstrated that nonanxious individuals do not differ from individuals with GAD in the endorsement of Type 1 worrying, but rather Type 2 worrying appears to be a distinctive feature of individuals with GAD (Davis & Valentiner, 2000; Wells & Carter, 2001; Wells & Papageorgiou, 1998). Several other studies have found that individuals with GAD experience more Type 2 worrying as compared to individuals without a diagnosis of an anxiety disorder (Cartwright-Hatton & Wells, 1997; Davis & Valentiner, 2000; Wells, 2005; Wells &
Carter, 2001) and individuals with panic disorder (Davis & Valentiner, 2000; Wells & Carter, 2001), social anxiety disorder (Davis & Valentiner, 2000; Wells & Carter, 2001), and depressive disorder (Cartwright-Hatton & Wells, 1997; Wells & Carter, 2001).

The Emotion Dysregulation Model of Worry

Drawing on theories that highlight the definition and function of worry, Mennin and colleagues (Mennin et al., 2002, 2005; Mennin, Heimberg, Turk, & Carmin, 2004) developed a model of worry that complements ideas presented earlier by Borkovec and colleagues as well as recent formulations by Newman and Llera, and helps explain the reasons why worriers seek to avoid their emotional experiences or emotional contrasts. Mennin and colleagues argue that emotion dysregulation is a major feature in the psychopathology of worry such that individuals worry as a result of their poor emotion regulation skills. According to the authors, individuals with high worry are more likely to have heightened intensity of emotions, poor understanding of their emotions, negative reactivity to one’s emotional state (i.e., fear of emotion), and maladaptive emotional modulation responses. Having difficulties processing their emotional experiences through the adaptive processes of attention, understanding, and experiencing, these individuals make use of worry to avoid the distress associated with negative emotional arousal. Mennin and colleagues add that although worry may be soothing in the short-run, in the long-run it creates a self-perpetuating cycle of emotional dysregulation. That is because worry interrupts adaptive emotional processing of distressing emotional material and paradoxically amplifies emotional intensity, prompting the use of further worrying by the individual.

A growing body of research has begun to emerge confirming that individuals who endorse symptoms of GAD report more intense emotional experience, poorer understanding of
emotions, greater negative reactivity to emotional experience, and greater restriction in their ability to self-sooth after negative emotions than nonanxious individuals (Mennin et al., 2005; Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006). In a series of three studies, Mennin and colleagues (Mennin et al., 2005) found that students with self-reported GAD and individuals who met criteria for GAD displayed poorer emotional regulation skills compared to control participants. In addition, they found that students with GAD reported greater physiological symptoms and greater difficulty managing their reactions after an emotion-inducing exercise than compared to controls (Mennin et al., 2005). Specifically, in their first study, they asked over five hundred university students to complete self-report measures on emotional intelligence, alexithymia, emotion expression, fear of emotions, worry, GAD, and depression. They found that individuals with GAD reported greater deficits in their ability to understand (i.e., identify, describe, differentiate) their emotional experiences and to clarify what motivational information their emotions conveyed in comparison to control participants. Further, the authors found that emotion dysregulation was associated with chronic worry even after known correlates of worry (i.e., trait anxiety and depression) were controlled for in the analyses.

In their second study, Mennin and colleagues (Mennin et al., 2005) administered the same aforementioned measures to a clinical sample of forty-two GAD patients. They found similar results as study 1, suggesting that the emotion regulation difficulties found in study 1 were not an artifact to the presence of other emotional disorders in the sample of university students. In their third study, Mennin and colleagues tested whether the experience of emotion would elicit emotion regulation deficits in a sample consisting of over a hundred university students with and without GAD. They asked GAD participants and controls to listen to mood-inducting (i.e., anxious, sad, neutral) music and complete measures of subjective mood and
somatic anxiety before and after the experimental musical induction. The authors found that GAD participants, following a negative mood induction (either anxious or sad), reported greater levels of self-reported physiological anxiety symptoms than did control participants. In addition, GAD participants had more difficulty accepting their emotions and believed they had less influence over their course in reaction to the negative mood inductions than did controls. Mennin and colleagues concluded that individuals with GAD may have had difficulties managing specific emotional states during mood-inductions due to their difficulties understanding, reacting to, and managing their emotions, as found in studies 1 and 2.

Yamas, Hazlett-Stevens, and Borkovec (1997) also examined the responses of college students with self-reported GAD on the Toronto Alexithymia Scale (TAS) and found that they endorsed greater difficulty identifying and describing emotions than control participants. In another study, Roemer, Salters, Raffa, and Orsillo (2005) found that experiential avoidance and the fear of emotional experiences predicted the severity of GAD above and beyond worry itself. Correspondingly, Salters-Pedneault and colleagues (Salters-Pedneault et al., 2006) investigated emotion regulation deficits in chronic worry and GAD using a well-established and psychometrically sound measure of emotion dysregulation (i.e., the Difficulties in Emotion Regulation Scale, DERS; Gratz & Roemer, 2004). In a sample of 325 university students, they found that with the exception of emotional awareness, individuals with chronic worry reported difficulty with a range of emotion regulation competencies. These included: deficits in emotional clarity, acceptance of emotions, ability to engage in goal directed behaviours when distressed, impulse control, and access to effective regulation strategies. Of note, the relationship between emotion regulation deficits and analogue GAD status remained significant after variance accounted for by general affective distress was removed. Although research supporting the
model of Emotion Dysregulation is still growing, the findings emerging in the empirical literature provide compelling convergent evidence for the role of emotion dysregulation in the pathology of worry.

**A New Formulation of GAD and Worry: The Emotion-focused Model**

There is now a new model of worry and GAD stemming from the emotion-focused therapy (EFT) perspective that complements as well as expands on some of the ideas presented by existing models described earlier. Watson and colleagues (Watson & Goldman, 2012; Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) have formulated a model of GAD in which the disorder is viewed as reflecting the operation of core maladaptive emotion schemes developed as a result of early attachment injuries. Emotion schemes are understood as internal structures of experience made up of multiple levels of functioning (i.e., perception, sensation, cognition, memory, affect, physiological changes; Greenberg, Rice, & Elliot, 1993). The authors assert that in GAD these schemes are centered on painful emotional experiences of fear, sadness, and shame which originated from early attachment experiences of abandonment, neglect, and abuse as well as intrusive caretaking and invalidation. These maladaptive emotion schemes, which are on the edge of the individual’s awareness, contribute to a negative self-organization which construct the self as scared and vulnerable. Watson and colleagues posit that the painful emotions resulting from the activation of these schemes are also experienced by the individual with GAD as a threat to the integrity of his or her vulnerable sense of self, cuing overwhelming and undifferentiated distress associated with fears of disintegration and annihilation. As a result of this distress, the individual reacts with worry and anxiety in an attempt to protect the self from being overwhelmed by this distress and the associated painful
emotions of when they felt as a child in similar situations. A diagram of this model if presented below.

Figure 1. The EFT Model of GAD. Adapted with permission from Dr. Watson.

Watson and colleagues (Watson & Goldman, 2012; Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) place negative self-organizations (based on core painful emotion schemes) and the inability to regulate emotions at the heart of worry. Worry is viewed as a misguided attempt of the individual to protect the self from falling apart or becoming overwhelmed by painful emotions that he or she is unable to soothe. The authors explain that individuals with GAD were repeatedly exposed to threatening and negative events without adequate protection, soothing, and nurture. As a result, their emotion regulation capacities and identity formation were compromised. In the absence of adequate emotion regulation capacities and a resilient sense of self, these individuals did not have the resources to symbolize their maladaptive emotion schemes of fear, shame and sadness in awareness. That means that whenever painful emotion schemes get activated (in the present) or is anticipated to get activated
(e.g., through situations that resemble earlier events which led to developmentally significant emotional injuries), individuals with GAD become aware of a secondary undifferentiated distress that comes from those unsymbolized schemes and that they are unable to soothe. As noted earlier, this secondary distress threatens these individuals’ vulnerable self-organizations such that they fear they will disintegrate in the face of their emotional pain. Thus, these individuals worry to preserve their self-organizations. However, because core painful emotions are left unprocessed, worrying remains ongoing.

What distinguishes the EFT model from other existing models on worry and GAD is the explicit integration of affective and developmental/interpersonal elements within the worry process so that it is not seen as purely based on cognitive factors or on emotion regulation deficits. This model proposes that the worry process in GAD contains representations of self along with associated painful affect which originated in a relational context in childhood and is not adequately processed and modulated by the GAD individual. Note that this model views the self as a complex system composed of a set of elements that self-organizes according to cognitive-affective experiential processes activated by internal and external stimuli (Watson & Greenberg in press). In such a view, worry is much more than just a strategy to avoid negative emotion but a complex process involving the overall organization of the self among several modules (e.g., cognitive, affective, interpersonal/developmental). Thus, the avoidance of emotions involved in the worrying process does not just reflect the avoidance of anxious affect produced by an uncertain or threatening situation, but rather a proactive attempt by the individual to protect his or her negative self-organization against, ultimately, unsymbolized, painful emotion schematic memories.
Because of its recent formulation, no empirical study has to date directly investigated the premises of the emotion-focused perspective of GAD and worry. However, because this perspective shares some similarities with existing models of worry, such as seeing worry as an effort to cope with difficult emotions, it has found indirect support from existing research findings showing that people diagnosed with GAD and chronic worry have difficulty regulating emotions (Craske & Waters, 2005; Mennin et al., 2002, 2005). This perspective has also found support from research highlighting the associations of insecure attachment histories with emotion dysregulation (Lopez & Brennan, 2000; Mikulincer & Shaver, 2007) as well as with GAD and chronic worry (Cassidy 1995, 2009).

This dissertation seeks to add preliminary empirical support to the EFT model. There are two particular propositions that that this study hopes to empirically address that have been suggested as important within the emotion-focused view of GAD. The first proposition considers the importance of insecure attachment in the etiology of GAD and worry. The second considers the mediating role of negative self-organization and emotion dysregulation in the relationships between insecure attachment and worry and insecure attachment and GAD. In the next section a discussion of the role of insecure attachment on GAD and worry is provided.

Attachment Perspective on Worry

Bowlby’s theory (1969/1982, 1973) asserts that the protective and soothing functions of responsive caregiving lead infants to construe positive representations of their environment and emotional functioning which in turn provide them with a sense of safety to explore the world, confidence in their self-value, as well as promote the development of adaptive emotion regulation skills (e.g., support seeking, attention shifting, evocation of positive emotions, etc.).
Bowlby described infants as having a repertoire of innate behaviours that motivates them to seek and maintain proximity with caregivers. These behaviours, known as proximity seeking behaviours, are intended to elicit protection and provision from caregivers in times of stress, threat, or novelty.

According to Bowlby (1969/1982), if bids for proximity and comfort are answered sensibly and consistently by the caregiver, the infant feels protected from danger and soothed from anxiety. More importantly, the infant gains confidence in the availability of their caregiver to regulate anxiety, and confidence in his or her own ability to manage anxiety through the attachment relationship (Cassidy, 1994). Bowlby proposed that the internalization of positive interactions with attachment figures, with its respective positive expectancies around caregiving, forms a “working model” of secure attachment that provides the child with a secure base from which to explore their surrounding environment as well as their affective experiences without being overcome by fear.

Unfortunately, however, not all children receive sensible and consistent care. If the attachment figure is unavailable, insensitive or inconsistent to the infant’s bids for proximity, negative views of others and the world are formed based on the infant’s experiences of emotional misattunement, unpredictability of care and exposure to physical danger. In addition, fear and anxiety are not alleviated and the infant is required to learn affect regulation strategies other than proximity seeking (Bowlby, 1969/1982; Main & Solomon, 1990; Mikulincer, Shaver, & Pereg, 2003). Given that in insecure attachment relationships infants are made to feel that their anxiety is unwarranted or unmanageable, alternative emotion regulation strategies emerge in which the infant either denies emotional distress and develops a distorted sense of self-reliance, or overreacts to internal cues and hyperactivates the attachment relationship (Cassidy, 1994). To put
it another way, the infant learns to remain cognitively and emotionally aloof in times of distress, or to resort to intensive efforts to achieve love, care, and support to cope.

Several studies have found links between differences in the quality of early attachment relationships and differences in internal working models as well as expression of emotions in infants (Ainsworth, Blehar, Waters, & Wall, 1978; Cassidy, 1994; Kobak & Sceery, 1988; Main, 1990; Main, Kaplan, and Cassidy, 1985; Sroufe, 2000). Noteworthy among these is the “strange situation” procedure devised by Ainsworth and colleagues (1978). The strange situation procedure comprised of several episodes of interaction involving infants, mothers, and a stranger in a toy-filled room. Of special relevance were two instances when the mother left the infant alone with the stranger and then returned to be with the infant. By observing infants throughout this procedure, Ainsworth and colleagues (1978) identified three styles of attachment that reflected three different strategies infants used to seek and maintain proximity to their caregivers. These styles included a secure attachment style, an ambivalent attachment style, and an avoidant attachment style.

Ainsworth and colleagues (1978) observed that the expression of these three styles of attachment behaviours was significantly linked to differences in the interactional patterns of the infant-mother dyads. Emotion regulation was a determining factor in the differences between the attachment styles. Infants with a secure attachment were found to engage easily in exploratory play while in their mothers’ presence and became anxious when separated from them. They sought proximity and were easily soothed upon their mothers’ return. These infants were thought to have mothers who were responsive to their behavioural cues, such that they openly expressed negative and positive affect when it occurred (Cassidy, 1994; Sroufe, 2000). Conversely, infants with an ambivalent attachment style became unusually distressed and anxious with their
mothers’ absence and were not easily soothed upon their return. Their response to their caregivers’ return was one of proximity mixed with rejection and anger. These infants were found to heighten affective experiencing in order to gain their mothers’ attention. This hyperactivating strategy reflected an attempt to maximize care and protection in the context of inconsistent and unpredictable caregiving (Cassidy, 1994; Sroufe, 2000).

Infants with avoidant attachment were found to be unaffected by their caregivers’ presence or absence during the strange situation. Contrary to secure and ambivalent infants, they displayed no distress in the absence of their caregivers and made no attempt at proximity upon reunion. These infants were thought to have insensitive mothers who responded to distress or vulnerability with punishment and rejection. Thus, it appeared these infants learned to use deactivating strategies to suppress emotional arousal. In this way, these infants ensured sufficient proximity to caregivers while also preventing caregivers from becoming alienated by the infants’ emotional responding (Cassidy, 1994; Sroufe, 2000). Interestingly, these infants’ heart rates during the separation episode from their caregivers were later found to be as elevated as those of visibly anxious but secure infants, and the rise in their level of cortisol (stress) hormone before and after the strange situation procedure was significantly greater than that of secure infants (Spangler & Grossmann, 1993; Sroufe & Waters, 1977). In addition, both avoidant and ambivalent children (i.e., insecure children) showed inhibition in their exploratory play during the procedure, suggesting that the inflexible use of either hyperactivating or deactivating emotion regulation strategies not only resulted in dysfunctional emotions and physiological disturbance, but also interfered with other important developmental activity (Cassidy, 1994).

Bowlby (1973) described several early negative experiences that could lead a child to become uncertain about the availability of the caregiver and, in turn, develop chronic anxiety.
These include major attachment-related problems, such as serious illness of a caregiver or repeated extensive separations from a caregiver, which could lead a child to worry. Another experience involves the death of someone close to the child, which may result in the child’s increased worries that something may happen to a caregiver. Bowlby also identified repeated daily experiences of rejection, particularly in times of stress when the child bids for proximity, as precursors to anxiety. Of importance, Bowlby recognized that major trauma was not necessary to lead to anxiety. He highlighted that repeated situations representing threats of abandonment or separation (whether overtly or covertly) could contribute to a child’s increased fearfulness about her well-being and/or the well-being of her caregiver (Cassidy, 1995).

Several early theorists proposed that insecure attachment would have a major role in the development of chronic anxiety and possibly worry. For example, Horney (1950 as cited in Crits-Christoph, Gibbons, & Crits-Christoph, 2004) suggested that negative attachment experiences with caregivers (e.g., overprotection, domination, and indifference exchanges) lead to a lack of confidence in the child (to elicit care) and in the availability of caregiver (to provide care) which causes her to feel isolated and helpless, as well as to view the world as hostile. Horney predicted that this child would develop “basic anxiety” which she then would attempt to manage by creating an idealized self-image of herself. This idealized self, however, would never be within reach and would lead to a neurotic conflict leading to further anxiety and concerns about self and others.

Correspondingly, Sullivan (1953) postulated that poor relationships with caregivers and the anticipated disapproval from them would often result in anxiety. Sullivan argued that early insecure attachment experiences would increase a child’s need for security and thus compromise the development of independence and self-esteem. According to Sullivan, insecurely attached
individuals would have difficulties meeting their needs for security and personal satisfaction later in life as well as developing a sense of agency, and as a result, they would experience anxiety in times of distress. Klein (1975) discussed anxiety as originating from a child’s fear of not being able to elicit the caregiver in times of need. For Klein, anxiety was intimately related to the individual’s lack of confidence in their ability to sustain or repair relationships. Altogether, these early theorists proposed that worry would thus originate from a more basic anxiety arising from one’s lack of self-esteem and associated fear of not obtaining what one needs in relationships (Crits-Christoph et al., 2004)

More recently, Newman and Erickson (2010) contended that GAD originates from insecure attachment experiences of inconsistent caregiving where the child is pulled into a developmentally premature state of needing to take care of themselves, the caregiver or both. Sibrava and Borkovec (2006) proposed a similar hypothesis for the possible origins of worry. They argue that having had unreliable and enmeshed caregiving, the child had to look out for themselves and their caregiver. The child’s caregiving may go beyond mere concern about the state of their relationship with the caregiver. The child may have to worry about the actual emotional well-being of her caregiver such that the psychological responsibility of the caregiver becomes the child’s own concern. In this context, the child feels that the world is a dangerous place and that they have to anticipate the future for both themselves and the caregiver in order to survive and obtain their caregiver’s love and approval. Correspondingly, Borkovec and Newman (1999) suggest that individuals with GAD often had to give care to their caregivers rather than receive care. As a result, they conclude that individuals with GAD may be attuned to other’s agenda for attachment and “constantly anticipates threats as the necessary means to obtain love, approval, and nurturance” (p. 446).
Wolfe and colleagues (Wolfe, 2005; Wolfe & Sigl, 1998) have also proposed that the etiology of worry lies on early experiences of self-endangerment (i.e., experiences associated with separation, rejection, loss of a primary caregiver, intensely humiliating experiences or disillusioning experiences of the hands of a primary caregiver) prime the infant to protect one’s self-concept and self-image from painful shame-based emotions by interrupting sentient (i.e., immediate, in-the-moment) self-experiencing. According to Wolfe and colleagues, anxiety arises from the interruption of sentient self-experiencing in which the individual shifts attention from sentient awareness to reflexive (i.e., preconceived) awareness. The authors suggest that the failure to process and modulate shame-laden self-endangerment experiences from the past, and later negative sentient self-experiencing, results in the individual engaging in compulsive, reflexive self-experiencing and thereby relying on worry as a primary defense to avoid the awareness of feelings of inadequacy, inferiority and humiliation. Worrying in this light is therefore viewed as a form of “obsessive cogitation” that originates from negative early experiences in which immediate self-experience is ignored or interrupted and the individual learns to respond only to preconceived notions about the self, others and the world (Wolfe & Sigl, 1998).

As described earlier, Watson and colleagues (Watson & Goldman, 2012; Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) have formulated the EFT model of GAD in which the disorder is viewed as reflecting the operation of maladaptive emotion schemes resulting from early attachment experiences of abandonment, neglect, abuse or alternatively intrusive caretaking or invalidation. The authors argue that these insecure attachment experiences – together with their sadness, fear, and shame responses – become encoded as painful autobiographical memories and internalized into an overall painful
maladaptive emotion scheme, characterized by a sense of vulnerability, which can be triggered in adulthood. Watson and colleagues posit that the symptomatic worry and anxiety in GAD is secondary to this basic sense of vulnerability, as the individual with GAD is cautious that core painful schematic memories of early attachment injuries might be activated.

There are several reasons why the developmental roots of worry would lie in insecure attachment (Cassidy 1995; Cassidy, Lichtenstein-Phelps, Sibrava, Thomas, & Borkovec, 2009). Cassidy and colleagues observe that the nature of worry is inherently interpersonal. They note that the most common themes in worry are associated with fears related to social evaluation and interpersonal relationships. To support this position, they show that GAD has high comorbidity rates with social phobia and that this is true for none of the other anxiety disorders. The authors also argue that the emotional dysregulation difficulties that have been found to characterize individuals with GAD, as predicted by the emotion dysregulation model of worry, are closely linked to attachment.

Cassidy and colleagues (1995; Cassidy et al., 2009) posit that emotion regulation capacities develop in the context of attachment relationships. They argue that it is within secure attachment dyads that children learn that distressing emotions can be recognized, acknowledged, tolerated, and recovered from rather than denied or avoided. The authors also cite evidence demonstrating that although GAD occurs within families, it lacks a strong genetic component. They review twin studies showing similar concordance rates for GAD and revealing no specific genetic heritability for the disorder (Torgesen, 1983; Kendler, Walters, Neale, Kessler, Heath, & Eaves, 1995 as cited in Cassidy, 2009). Finally, the authors argue that the diffuse nature of worry parallels the type of anxiety that Bowlby proposed to be related to insecure attachment. They note that Bowlby viewed the onset of anxiety as arising from an individual’s lack of confidence
that the attachment figure would be available in times of need. According to Bowlby (1973), this anxiety would develop no matter what the source of fear was and would engender in the individual a generalized sense of threat and vulnerability, with no specific trigger (Cassidy, 1995). This anxiety would then become organized alongside the individual’s working models of attachment relationships and the availability of attachment figures, and persist through adulthood.

There has been some debate as to whether styles of caregiver-infant attachment remain stable over the lifespan such that they would continue to influence current adult behaviours. Bowlby’s (1979) asserted that attachment mechanisms influence relationships “from the cradle to the grave” (p. 129). Some studies have found mixed support for this assertion (Lewis, Fering, & Rosenthal, 2000; Weinfield, Sroufe, & Egeland, 2000). For example, Lewis and colleagues (Lewis et al., 2000) have found no association between individuals’ overt attachment behaviours at 1 year of age and attachment representations in adolescence (Lewis, Feiring, & Rosenthal, 2000; Weinfield, Sroufe, & Egeland, 2000). However, they found that individuals with negative recollections of childhood, recorded in adolescence, showed insecure attachment representations in early adulthood. In another similar study by Weinfield and colleagues (Weinfield et al., 2000), the authors found no significant continuity in attachment representation in infancy (measured at 1 and 1.5 year of age) to early adulthood. However, findings revealed a significant relationship between early negative life circumstances (e.g., childhood maltreatment, maternal depression, and poverty) and insecure attachment representations in early adulthood (Weinfield et al., 2000).

Other studies examining the associations between individuals’ memories of childhood and adult attachment styles have also provided support, albeit indirect, of attachment continuity over the life span. For instance, Hazan and Shaver (1987) found that adults endorsing a secure
attachment representation described having had caring and warm relationships with their caregivers whereas individuals displaying an anxious and avoidant attachment representations described their parents as intrusive, cold and rejecting. Brennan and Shaver (1998) also found that insecure individuals described their parents as more rejecting relative to the secure group. Studies reviewing the relationship between child-caregiver attachment and later romantic attachment have also shown that child and adult attachment correlate at a moderate strength (Crowell et al., 1999; Fraley & Shaver, 2000). Of note, although recollections of child-caregiver attachment have been found to reflect past experiences as well as current circumstances (Henry, Moffitt, Caspi, Langley, & Silva, 1994; Lewis, 1997), internalized views of attachment figures have been found to be associated with adult functioning regardless of their veracity (e.g., Benjamin, 1996; Bowlby, 1973). Therefore, both actual and recalled early childhood experiences remain an important focus of research when investigating attachment styles.

Empirical findings appear for the most part to converge on the notion that attachment organization is stable over long periods of time, particularly from later childhood onwards (Fraley, 2002; Hamilton, 2000; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). From a more recent neuroscience perspective, researches (Cozolino, 2014; Hruby, Hast, & Minarik, 2011; Schore 2003) support the plasticity of neurosystems (particularly the orbitofrontal system) thought to be shaped by early attachment experiences; however, they also state that it is during the first years of life that the basic structure for internal working models and emotion regulation is formed. Overall, infant attachment does not appear to be necessarily deterministic of adult attachment, especially when disruptive life events or changes in attachment relationships occur (Cozzarelli, Karafa, Collins, & Tagler, 2003). However, given that new experiences are more easily assimilated into one’s existent working models and that attachment styles give rise to self-
fulfilling behaviours, attachment is usually thought to remain relatively stable over time (Collins & Read, 2004; Hazan & Shaver, 1994).

Fraley (2002) concluded from a review of longitudinal attachment studies (dating from 1979 to 2000) that a prototype for close relationships arises in infancy and it remains stable through adolescence and adulthood at a moderate strength. In his meta-analysis, he examined whether a revisionist or a prototype model best explained attachment stability. The revisionist model assumes that early attachment representations are revised and updated in response to ongoing experience and consequently may or may not correspond to later attachment representations. The prototype model assumes that early attachment representations are retained throughout development and have an ongoing effect on attachment dynamics throughout the life course. Fraley found that a prototype model of attachment stability provided the best fit to the attachment data, suggesting that a prototype-like process contributes to continuity of attachment across the life course. His estimated model indicated that early prototypes exert a moderate influence on subsequent interactions ($p = 0.39$) and that these interactions are easily incorporated into concurrent beliefs about the world ($\eta = 1.00$).

Fraley (2002) also found that his prototype model predicted that the continuity between early attachment security and attachment security at any point later in the life course would be equivalent to a correlation of approximately .39. Thus, internal working models of self, others, and the world as well as emotion regulations strategies learned early in life likely continue at a moderate level through adulthood, unless circumstances change or other experiences (e.g., psychotherapy) intervene (Sable, 2000; Wallin, 2007; Waters, Hamilton, & Weinfield, 2000). Perhaps internal working models and regulatory strategies become more sophisticated with age,
but guidelines for processing information and emotional responses remain over time (Watson, 2011).

Research on adult attachment behaviour grew out of Ainsworth et al.’s (1978) findings. It began with the idea that attachment relationships developed in early childhood are carried into adulthood and exert great influence on adults’ close relationships, in particular, romantic relationships. Hazan and Shaver (1987) were the first to develop a self-report measure of adult attachment. Paralleling Ainsworth et al.’s (1978) typology of infant attachment patterns, they described three prominent styles of adult attachment: secure, anxious (or ambivalent), and avoidant. Secure adults were shown to be comfortable with intimacy in relationship. They were more likely than avoidant and anxious adults to view their partners as trustworthy and less likely to worry about abandonment (Mikulincer & Shaver, 2007). Anxious (or ambivalent) adults tended to be nervous about relationships and desired greater intimacy than secure and avoidant adults. They were more likely to fall in love at first sight and also to long intensely for their partners’ reciprocation (Mikulincer & Shaver, 2007). In contrast, avoidant adults showed difficulty trusting romantic partners and felt unease with intimacy. They felt uncomfortable depending on their partners to provide care and were less likely than secure and preoccupied adults to accept their partners’ faults (Mikulincer & Shaver, 2007). Notably, these findings have been replicated and extended by several investigators (e.g., Brennan & Shaver, 1995; Carver, 1997; Feeney & Noller, 1990; Kirkpatrick & Davis, 1994; Simpson, Rholes, & Nelligan, 1992).

As research in adult attachment progressed, researchers have devised different ways to measure adult attachment patterns. Going beyond Hazan and Shaver’s (1987) initial method of measuring adult romantic attachment patterns, researchers have proposed additional and more general categories of adult attachment (see Mikulincer & Shaver, 2007 for comprehensive
review). For instance, Feeney, Noller and Hanrahan (1994) found evidence to divide the anxious (or ambivalent) attachment pattern into two categories: those who primarily demonstrate need for approval and those who are preoccupied with relationships. They also found support for breaking down the avoidant attachment pattern into two subgroups: those who primarily show discomfort with closeness and those who regard relationships as secondary to achievement (Feeney et al., 1994).

Conversely, Bartholomew and Horowitz, (1991) proposed a four-category model of adult attachment (secure, fearful, preoccupied, and dismissing) located in a two-dimensional space defined by model of self and model of other. Specifically, Bartholomew and Horowitz extended Hazan and Shaver’s (1978) classic styles of attachment by further dividing the avoidant category into two categories: fearful-avoidant type (i.e., those who avoid relationships due to fear of rejection) and dismissing-avoidant type (i.e., those who avoid relationships due to discomfort with intimacy). Bartholomew and Horowitz also conceptualized adult attachment following Bowlby’s (1973, 1988) ideas of internal working models of self and other. Individuals form either a positive or negative view of self and other. Those with positive models of self and other have a sense that they are worthy of care and expect others to be there for them in times of need. These individuals with positive models of self and other tend to favour closeness in relationships while those with negative models of self and others tend to avoid intimacy. Each of Bartholomew and Horowitz’s (1991) adult attachment categories can be located within these positive and negative regions of models of self and other.

Alternative to self-report measures, a separate avenue of research on adult attachment was developed through use of narrative and interview methods. At about the same time Hazan and Shaver (1987) began their work on adult romantic attachment, Main and colleagues (Main,
Kaplan, & Cassidy, 1985) devised the Adult Attachment Interview (AAI). In the AAI, adults were interviewed about their early experiences with their attachment figures and asked to reflect on childhood memories. The resulting narratives were analysed and adult attachment categories were defined along certain dimensions. The adult categories corresponded to the infant attachment classifications described by Ainsworth et al. (1978), including autonomous (similar to secure), detached or dismissive (similar to avoidant), and enmeshed or preoccupied (similar to anxious/ambivalent). Adults classified as autonomous are those able to speak freely and coherently about their early attachment relationships. In contrast, adults classified as dismissing are those who typically minimize the impact of early relationships on their current functioning. Dismissing adults often speak vaguely or in idealizing ways about their parents and have difficulty recalling childhood memories. Enmeshed adults, on the other hand, tend to become easily overwhelmed by the task of reflecting upon their childhood experiences. Their narratives are often long and are characterized by incoherencies and confusion. Like Hazan and Shaver’s (1987) work, the AAI has been extended by other investigators (e.g., Fonagy, Steele, Steele, Moran, & Higgitt, 1991).

Although research on adult attachment has often referred back to the different categories of infant attachment, recent studies have shown that adult attachment can also be conceptualized in terms of two dimensions: avoidance and anxiety (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998). The dimension of avoidance is characterized by a discomfort with intimacy and interpersonal closeness, while the dimension of anxiety is characterized by a chronic fear of interpersonal rejection and abandonment (Brennan et al., 1998). The idea behind this dimensional model of adult attachment is that combinations of high and low scores on the avoidance and anxiety dimensions contribute to an overall picture of attachment which removes
the need for categorization. For example, secure attachment is defined by low attachment avoidance and low attachment anxiety whereas fearful attachment is defined by high attachment avoidance and high attachment anxiety.

Some authors have criticized the use of categorical methods in adult attachment research (Fraley & Spieker, 2003; Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). However, both categorical and dimensional methods for investigating attachment have been found valuable in expanding our understanding of emotional aspects in relationships, as evidenced by the fact that adult attachment patterns assessed by differing methods have been confirmed to be associated with important relational adjustments (Shaver, Belsky, & Brennan, 2000). Also, the use of categorical scales – including the original adult attachment measure by Hazan and Shaver (1987) used in this study – continue to provide a practical framework upon which many researchers rely when investigating significant attachment issues stemming from close relationships (Shi, Wampler, & Wampler, 2014; Sroufe, 2003).

Until recently, empirical research had not focused on the association between insecure attachment styles and worry. However, over the past decades a growing body of studies began to emerge highlighting this link. Worry has been linked to experiences of traumatic events involving significant others (Roemer, Molina, Litz, & Borkovec, 1996) and a history of disturbed early environments, particularly for those who developed GAD before the age of 20 (Hoehn-Saric, Hazlett, & McLeod, 1993). Eng and Heimberg (2006) have shown that undergraduate students with self-reported GAD shared similar levels of attachment to peers and perceived social support compared to control participants, but they reported greater attachment insecurity with caregivers than controls. Mickelson and colleagues (Mickelson, Kessler, & Shaver, 1997) have found that both anxious and avoidant insecure attachment styles are associated with GAD.
Other researchers have gone one step further and tried to identify which specific characteristics of insecure attachment experiences are linked to worry. For example, Bifulco and colleagues (Bifulco, Kwon, Jacobs, Moran, Bunn, et al., 2006), have found that adult women with GAD endorsed greater angry-dismissive attachment styles marked by high levels of avoidance, self-reliance, mistrust, and anger which the authors argue may have been perpetuated by childhood experiences of unmet needs and/or threats of separation from caregivers.

A few studies to date have also examined the associations of early attachment and parenting experiences with worry or GAD in children and adolescents (Hale et al., 2006; Muris, 2002; Muris et al., 2000; Brown & Whiteside, 2008). Most of this work has used the children’s version of the EMBU (Egna Minnen Betræffende Uppfostran, My memories of upbringing; Perris, Jacobsson, Lindstrom, von Knorring, & Perris, 1980) which is a retrospective self-report measure of perceived parenting behaviours, as well as Hazan and Shaver's (1987) three-category attachment measure. For instance, one study of a community sample of one hundred and fifty-nine children (ages of nine to thirteen) found that negative perceived parental rearing behaviours characterized by parental rejection, control, and fearfulness were found to be positively associated with worry (Muris et al., 2000). The authors found that the more children perceived their parents as rejecting and anxious, the higher their levels of worry (Muris et al., 2000). In addition, children who classified themselves as avoidantly or ambivalently attached displayed higher worry levels than children who classified themselves as securely attached (Muris et al., 2000).

Another study with a clinically anxious sample of children and teens (eight of whom met criteria for GAD) found significant correlations between parental rejection and worry (Brown & Whiteside, 2008). Ambivalently attached children were also found to report more negative
parental rearing behaviours and more worrying as compared to children with either secure or avoidant attachment styles (Brown & Whiteside, 2008). No findings were reported for the relationships between parenting behaviours and worry as well as attachment styles and worry for the GAD sample alone (Brown & Whiteside, 2008). Correspondingly, Hale and colleagues (Hale et al., 2006) have also found that parental rejection and parental alienation uniquely predicted GAD symptoms in a sample of adolescents. The authors demonstrated that adolescents who experienced feelings of isolation, anger, and detachment in their relationships with caregivers (i.e., parental alienation) and perceived their caregivers as more rejecting (i.e., parental rejection), endorsed greater GAD symptoms.

To further investigate the relationship between attachment and worry, Cassidy and colleagues (Cassidy et al., 2009) compared a group of sixty-nine adult therapy clients with GAD to a matched nonanxious control group on a self-report measure of attachment (i.e., Perceptions of Adult Attachment Questionnaire [PAAQ]; Lichtenstein and Cassidy, 1991 as cited in Cassidy et al., 2009). The PAAQ consists of eight theoretically-based scales tapping both childhood experiences of a) rejection/neglect, b) being loved, c) role-reversal/enmeshment, as well as current state of mind in relation to attachment: d) vulnerable, e) balancing-forgiving, f) angry, g) dismissing/derogating, and i) lacking in memory for childhood. Cassidy and colleagues found that GAD clients reported significantly higher experiences of childhood rejection/neglect and role-reversal/enmeshment, and significantly lower experiences of being loved and cared for by their primary caregivers, in comparison to nonanxious controls.

In terms of current state of mind with respect to attachment, Cassidy and colleagues (Cassidy et al., 2009) found that GAD clients reported significantly higher vulnerability toward their mothers and also reported greater difficulty recalling childhood memories than nonanxious
controls. Moreover, these PAAQ current state of mind subscales (i.e., vulnerable and lacking in memory for childhood) were able to accurately predict diagnostic (i.e., GAD) status for nearly three-quarters of the participants. The authors concluded that an anxious childhood based on enmeshment and parental coldness and rejection could lead to generalized worries about the future. They explain that a child with an insecure attachment bond to her caregiver would not be able to count on the caregiver for care and protection, and in addition, would need to develop avoidant coping mechanisms (e.g., worry) to manage the painful feelings associated with the caregiver’s rejection. Moreover, the authors argue that the finding that GAD individuals endorse greater feelings of anger/vulnerability towards their mothers and demonstrate a greater lack of memory with respect to childhood experiences appears consistent with Borkovec’s conceptualization that worry seems to serve the function of preventing the processing of disturbing emotional material and of protecting individuals from more painful unresolved attachment issues (Cassidy et al., 2009).

Additional support for the association between attachment and worry comes from studies highlighting the similarities between the interpretative biases among individuals with GAD and those with insecure attachment styles. As discussed earlier, individuals with GAD have been found to display attentional and interpretative biases favoring the encoding of threatening stimuli and threatening meaning of ambiguous information (Hayes & Hirsch, 2007). Bowlby (1969/1982) suggested that insecurely attached individuals who lack a secure base from which to explore the world would also display such vigilant monitoring of their environments and direct attention to threat stimuli as well as interpret ambiguous situations as indicative of such treatment.
In a study investigating the association between negative childhood experiences and both attention and interpretation biases for angry faces, Gibb and colleagues (Gibb, Schofield, & Binghamton, 2009) found support for that position. The authors found that among a sample of more than two hundred college students, those who reported a history of negative childhood experiences preferentially allocated their attention to angry face, but not happy or sad faces. In addition, these participants also exhibited increased sensitivity in the detection of angry expressions at a lower level of emotional intensity in comparison to their secure counterparts. Cassidy and colleagues (Cassidy, Kirsh, Scolton, & Parke; 1996) also found that insecurely attached six-year old children were more likely to attribute hostile intent to a series of ambiguous stories than were securely attached children. These findings suggest that the cognitive processes characteristics of individuals with GAD are also the cognitive processes that arise in children and young adults who are insecurely attached (Cassidy, 1995). As Cassidy (1995) notes, both GAD and insecurely attached individuals view the world as a dangerous place and themselves as vulnerable to threat.

The link between insecure attachment and worry is also implied from the association between interpersonal problems and GAD. Research has shown that individuals with GAD score higher than controls on a variety of interpersonal problems assessed by the Inventory of Interpersonal Problems Circumplex (IIP–C; Alden, Wiggins, & Pincus, 1990; Horowitz, Alden, Wiggins & Pincus, 2000) and report greater overall interpersonal distress than nonanxious individuals (Eng & Heimberg, 2006; Pincus & Borkovec, 1994; Salzer, Pincus, Hoyer, Kreische, Leichsenring, & Leibing, 2008). For instance, Salzer and colleagues conducted a cluster analysis among seventy-eight individuals with GAD in order to identify subtypes of GAD clients based on their interpersonal problems. They found four types of problematic interpersonal dispositions
associated with GAD: (a) exploitation (e.g., letting others take advantage of them), (b) coldness (e.g., keeping people at a distance), (c) nonassertiveness (e.g., having difficulties asserting oneself to others), and (d) intrusiveness (e.g., having difficulties staying out of other people’s business).

A later study from Przeworski and colleagues (Przeworski et al., 2011) also found those same four interpersonal subtypes to be characteristic of individuals with GAD. However, in Przeworski et al.’s study, clusters were more evenly divided among participants (with 27.7% falling in the intrusive cluster, 31.9% in the exploitable cluster, 21.28% in the cold cluster, and 19.15% in the nonassertive cluster) whereas Salzer and colleagues found relatively small percentages in the intrusive and non-assertive clusters (14.5% and 10.5%, respectively), over 50% in the exploitable cluster (52.6%), and 22.4% in the cold cluster. Przeworkski and colleagues also found that the differences in interpersonal functioning across individuals with GAD were not accounted for by differences in DSM-IV Axis I symptoms (e.g., depression) and 95% of individuals in the nonassertive cluster met criteria for an avoidant personality style.

Clusters of interpersonal problems are thought to originate from an individual’s interpersonal learning history which manifests itself in large part in the individual’s negative attachment experience (Horowitz, Rosenberg, & Bartholomew, 1993). For example, individuals whose early experiences were characterized predominantly by enmeshment with attachment figures are expected to develop difficulties accepting distance between them and important others. Alternatively, individuals whose early experiences were characterized predominantly by parental rejection are expected to develop a cold and avoidant style of interacting with significant others. Przerworski and colleagues (Przeworski et al., 2011) did not find empirical support for an association between interpersonal subtypes and attachment styles among individuals with GAD.
However, the authors highlight that in their study there was a trend toward significance between GAD-related interpersonal clusters and attachment subscales with a large effect size. Przerworski and colleagues explain that it is possible that they did not have sufficient power in their study to detect significant differences in attachment variables across interpersonal subtypes among their samples. Clearly more studies are needed to elucidate this matter. However, it seems plausible to assume that GAD is characterized by several interpersonal difficulties which appear to originate in early interpersonal dynamics and could be further explained by attachment theory.

More recently, Koerner and colleagues (Koerner, Tallon, and Kusec, 2015) investigated the associations between early maladaptive schemas and GAD symptoms. In a sample of one hundred and thirty-eight university students, the authors found that maladaptive schemas reflecting exaggerated self-standards (e.g., “one should not make mistakes”) and a need to place others’ needs ahead of their own uniquely predicted greater GAD severity, after controlling for trait anxiety and depressive symptoms. These findings were in line with Hazlett-Stevens’ (2008) assertion several years ago that individuals with GAD not only have fundamental beliefs that the world is dangerous and that one is unable to cope with adversity, but they also hold self-relevant schemas that are maladaptive, including rigid self-expectations.

It must be noted that the review on worry development focuses on the underlying concept of attachment interactions. However, attachment is not the only influence on the development of worry. Dispositional factors and temperament characteristics, such as neuroticism, harm avoidance, and behavioural inhibition, may also have an impact on the development of worry (Kertz & Woodruff-Borden, 2011; Mineka, Yovel, & Pineles, 2002; Rapee, 2001). For instance, Hettema, Prescott, and Kendler (2004) found evidence that there is a high degree of correlation between neuroticism and GAD ($r = 0.80$) and that these two
presentations may involve some of the same genes, as evidence by their twin data. In another study, Rettew and colleagues (Rettew, Doyle, & Kwan, 2006) assessed the relationship between levels of the temperamental trait of harm avoidance and GAD diagnosis in 334 individuals, both children and adults. Harm avoidance is widely recognized as a personality trait that denotes behavioural inhibition due to anticipatory worry of future problems, low energy, and passive avoidant behaviours and shyness with strangers (Cloninger, Svrakic, & Przybeck, 1993). The authors found that harm avoidance scores were highly predictive of GAD diagnoses in children and adults.

Rapee and Szollos (1997 as cited in Rapee 2001) also found that compared with nonclinical children, mothers of clinically anxious children reported that their children were more difficult and fearful in their first two years of life. Clinically anxious children were described as being more likely to cry, have difficulties sleeping, experience pain and gas, have greater fears of strangers and the dark, and have greater difficulties setting into day care and school as compared to their nonanxious counterparts. However, the authors found no significant differences between anxiety disorders. Other studies have found strong relations between anxiety disorders – although not specifically GAD – and the temperamental dimensions of behavioral inhibition (see review by Degnan, Almas, & Fox, 2010). The term behavioural inhibition has been used to describe individuals who are overly fearful and reticent when confronted with novel situations and people (Kagan, 1994). Some of these studies have demonstrated that behavioural inhibition is highly predictive of psychopathology, particularly anxiety disorders (Biederman, Rosenbaum, Bolduc-Murphy, Faraone, Chaloff, Hirshfeld, et al. 1993; Schwartz, Snidman, Kagan, 1999). For example, Biedeman and colleagues (Biederman et al., 1993) found that
children identified as behaviourally inhibited at 21 months of age are more likely than uninhibited children to develop an anxiety disorder 5 to 10 years later.

Temperamental characteristics have been deemed neither sufficient nor necessary to determine an anxiety or GAD diagnosis (Kertz & Woodruff-Borden, 2011). For example, in the aforementioned study by Rettew and colleagues (Rettew et al., 2006), the authors found that a significant number of individuals (e.g., half of the children participants) with high harm avoidance scores did not qualify for a GAD diagnosis, suggesting that while there are strong associations between harm avoidance and GAD, high levels of harm avoidance are not decisive in the formation of clinically significant anxiety symptoms. Other research has also shown that approximately one-half to two-thirds of behaviourally inhibited children do not develop clinically significant anxiety (Prior, Smart, Sanson, & Oberklaid, 2000; Schwartz et al., 1999).

Temperament appears to be one of many other important factors that interact to influence the development of anxiety. Thus, worry is likely the result of a complex interaction among biological, psychological and environmental factors, out of which attachment exert a meaningful influence.

**From Insecure Attachment to GAD and Worry: The Roles of Negative Self-organizations and Emotion Dysregulation**

As shown in the previous section, the literature has presented a consistent picture of the associations between insecure attachment and GAD as well as worry. It has also highlighted possible mediating mechanisms that could help explain those associations, such as emotion dysregulation, interpersonal problems, and information processing biases. While existing models of GAD and worry have identified attachment experiences and those possible mediating mechanisms to be important in the development of GAD and worry, the EFT model explicitly
articulated how attachment injuries can give rise to GAD and worry in its formulation. The EFT model suggests that insecure attachment experiences may lead to GAD and worry through the construction of negative self organizations and the inability of the individual to regulate emotions (Watson & Goldman, 2012; Watson & Greenberg, 2015; Watson & Greenberg, 2015, in press; Watson, 2015). Below is a review of the literature concerning negative self-organizations and emotion regulation.

Negative Self-organizations

The EFT model of GAD and worry posits that one of the ways in which attachment insecurity contributes to the development of GAD and worry is by engendering in individuals a vulnerable sense of self. Watson and colleagues (Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) described a vulnerable self-organization as involving primarily, among other elements, a negative self-concept, a sense that the self is incompetent to cope with challenges, and negative ways of relating to self and others. On the basis of this formulation, this dissertation operationalized negative self-organization as encompassing low self-esteem, a negative problem orientation, and low differentiation of self.

It must be noted here that Watson and colleagues (Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015) stress the important of viewing the self as a process, rather than a “thing.” In such a view, a negative self organization is much more than just holding low self-esteem, a negative problem orientation, and low differentiation of the self. It is a complex, dynamic process composed of a set of organizations – generated by maladaptive emotion schemes – which organize themselves at any moment according to cognitive-affective processes activated by internal and external stimuli (Watson & Greenberg, in press). Because
this process-structural perspective on the self can be difficult to capture in research using measures that assess “static” constructs, this dissertation focuses on low self-esteem, negative problem orientation, and low differentiation of self as variables that resemble part of the attributes of a negative self organization articulated by the EFT model. Below is a discussion of these constructs along with their relationship with insecure attachment and GAD as well as worry.

**Self-esteem.** Self-esteem is one of the most researched constructs associated with the self (Baumeister, 1997; Brown, 2014). Self-esteem has been defined as the “degree to which (we) hold attitudes of acceptance or rejection toward (ourselves)” (Rosenberg, 1962, p.135) and a subjective “evaluation of our worthiness as individuals” (Neff, 2011, p.1). It represents the cognitive-affective evaluative component of our self-concept and it involves the concepts of self-respect, self-liking, and self-acceptance (Rosenberg, 1965). Developmental theorists posit that self-esteem is formed at an early age and is largely shaped by early interactions with caregivers and peers (Harter, 2006). For the most part, children appear to learn to evaluate themselves through the information they receive from important figures about their competencies and acceptability and by comparing their characteristics and abilities with those of important others.

From an attachment perspective, children with secure attachment to caregivers are expected to view themselves as worthy of love and care, and hence to have higher self-esteem in comparison to children with insecure attachment bonds. Attachment theory also asserts that attachment security is a source of support for self-exploration and for the mastering of developmental tasks which promote feelings of competence and efficacy, and thus should be linked to high self-esteem levels in children in securely attached dyads (Bowlby, 1969/1982, 1973). Studies have indeed confirmed that individuals reporting secure attachment with their
caregivers experience high levels of self-worth (e.g., Armsden & Greenberg, 1987; Papini & Rogman, 1992). In addition, secure individuals have been found to have a more positive, coherent and well-organized self-structure (Mikulincer, 1995).

Brown (2014) argues that the affective quality of attachment dyads is particularly relevant for the development of self-esteem and how one feels about him- or herself. He asserts that feelings are at the very core of self-identity such that self-esteem is not purely the product of cognitive self-evaluations, but rather a more general state of feeling or affection for the self stemming from infancy, before cognitive capacities have developed to form a representation of the self. Brown differentiates between two types of self-esteem – self-esteem originating from affirmations of important others and self-esteem stemming from mastery – and argues that the affective quality of attachment dyads has an influence on both types of self-esteem. He posits that both types of self-esteem are rooted in the security of safe, warm, loving attachments in infancy and early childhood. He notes that self-esteem developed from affirmation leads to a sense of belonging whereas self-esteem that stems from mastery leads to feelings of joy and a cognitive assessment of competence.

Research has shown that individuals with high self-esteem tend to have clear and consistent self-knowledge, whereas individuals with low self-esteem have confused, fractured and inconsistent views of themselves (Brown, 2014, Baumeister, 1997). Individuals with low self-esteem have been found to be insecure about their ability to achieve success regardless of their objective abilities and they tend to experience failure as more devastating than individuals with high self-esteem (Brown, 2014; Baumeister, 1997). In a study investigating reactions to failure among high and low self-esteem individuals, Brown and Dutton (1995) showed that while people with low and high self-esteem both feel positive emotions and pride in response to
success, and sadness in response to failure, only people with low self-esteem experience shame and humiliation about the self in response to failure. The authors also found that people with low self-esteem, regardless of competency levels, were motivated to avoid risks and protect themselves from failure, as the experience of failure appeared more painful for them than for those with high self-esteem (Brown & Dutton, 1995).

The role of self-esteem in the development and maintenance of psychopathology has been studied mostly in relation to depression where poor self-esteem has been documented to not only be strongly related to depressed mood but also to contribute to it (Orth & Robins, 2013; Sowislo & Orth, 2013). The relationship between self-esteem and anxiety has only rarely been investigated (Sowislo & Orth, 2013), and no study has looked specifically at the relationship between low self-esteem and worry. In a recent meta-analytic study of 18 longitudinal studies on the relationship between self-esteem and anxiety (as measured by general self-report measures such as the Beck Anxiety Inventory), Sowislo and Orth (2003) found that unlike the findings for the relationship between self-esteem and depression where the vulnerability model (i.e., low self-esteem contributing to depression) is consistently supported, the relationship between self-esteem and anxiety is symmetric and reciprocal, with small but significant, prospective effects moving in both directions (i.e., low self-esteem contributing to anxiety and anxiety contributing to low self-esteem).

Sowislo and Orth (2003) do not specify how low self-esteem might be related to different forms of anxiety (e.g., social anxiety, worry, panic, phobias). However, they expect that low self-esteem may be a stronger vulnerability factor for anxiety disorders that are highly comorbid with depression, such as generalized anxiety disorder (Sowislo & Orth, 2013). Although the present study makes no claims about the directionality of the relationship between low self-esteem and
GAD as well as worry, it seeks to examine how these three constructs relate, and to investigate their relationships with attachment. To date, no studies have conducted such examination.

**Negative Problem Orientation.** Another way in which attachment insecurity appears to contribute to the development of GAD and worry is by engendering in individuals a sense that they are incompetent to cope with adversity. Theoretical formulations from cognitive, EFT and attachment perspectives all postulate that cognitive-affective processes – including beliefs about self, others and the world as well as a felt sense of self as it interacts in the world – are largely formed out of a child’s repeated experiences with their attachment figures and would have an influence on the etiology of GAD and worry (Borkovec et al., 2004; Cassidy, 2009; Watson & Greenberg, in press). If the child has experienced insecure attachment with the caregiver, he or she would be expected to develop a view and sense of the world as a dangerous place and come to believe that feared events are more likely to occur than they really are. Such a child would also develop faulty beliefs and a negative sense of herself and, as a result, underestimate her coping resources or view herself as incompetent to deal with perceived threat. This child would thus be more likely to experience anxiety, including worry.

Cognitive theorists have for the most part emphasized the role of logical errors or faulty thinking in the worry process (Borkovec et al., 2004; Dugas et al., 2004, 2005; Leahy, 2005; Wells, 2006). They have argued that worry is driven by cognitive errors of probability overestimation (i.e., assuming negative events are more severe and probable than they actually are) and catastrophizing (i.e., assuming that outcomes will be less manageable than they actually may be; Provencher, Freeston, Dugas, & Ladouceur, 2000). In addition, and as discussed in previous sections, cognitive theorists have proposed that worry is linked to distorted beliefs.
about its usefulness (e.g., “worry will help me cope”) and a preference for negative outcomes rather than uncertain ones (Dugas & Robichaud, 2007).

Berenbaum and colleagues (Berenbaum, Thompson, & Pomerantz, 2007) also found support for the relationship between worrying and perceived threats and added that the perceived costs of feared situations are related to worry severity. The authors asked a hundred and ninety-seven college students to report their most common concerns and to rate how probable they thought those concerns would actually happen. They also asked students to rate how upsetting they would feel if their concerns actually happened. Findings from their study revealed that individuals with high levels of worry exhibited high levels of perceived threat. Moreover, these individuals also reported high levels of perceived distress associated with their concerns. The opposite pattern of results was found for individuals with low levels of worry. The authors concluded that chronic worriers tend to perceive their threats as more probable as well as costlier (i.e., causing greater distress) than individuals who experience low levels of worry.

Cognitive researchers have also proposed that worry is associated with decreased confidence in one’s ability to cope effectively with problems (Davey, 1994; Davey, Hampton, Farrell, & Davidson, 1992; Dugas, Freeston, & Ladouceur, 1997). For instance, Davey (1994) asked eighty-two university students to complete measures of worry and problem solving abilities and confidence. He found that correlations between high levels of worry and problem abilities were nonsignificant. However, increased worry was highly associated with poor problem-solving confidence and poor perceived control over the problem-solving process (r = .58 and .49, respectively, p < .001). According to Davey, “pathological worrying is not generated by poor problem-solving skills per se, but by an individual’s lack of belief in the adequacy of their problem-solving abilities and their ability to implement solutions” (Davey, 1994, p. 329).
Building from that position, Dugas and colleagues (Dugas & Robichaud, 2007; Koerner & Dugas, 2006) argue that individuals with chronic worry hold a negative problem orientation in response to problems. Negative problem orientation refers to a set of dysfunctional attitudes and perceptions related to the problem-solving process (Koerner & Dugas, 2006). Specifically, negative problem orientation includes perceptions of problems as threats, a lack of self-confidence in one’s problem-solving abilities, and negative views of the outcome of one’s problem-solving efforts (D’Zurilla, Nezu, & Maydeu-Olivares, 1998 as cited in Koerner & Dugas, 2006). Dugas and Robichaud (2007) note that negative problem orientation is one of the constituents of the problem-solving process, which also include problems solving skills (e.g., defining a problem and formulating problem-solving goals, generating alternative solutions, and choosing a solution). According to the authors, worrying is largely unrelated to this second component of the problem-solving process which involves knowledge of problems-solving skills (Dugas et al., 1997). They argue that individuals with chronic worry do know how to find solutions to their problems. However, they posit that these individuals have difficulties arriving at effective solutions because they view problems as threats, doubt their coping abilities, and are pessimistic about the problem-solving outcome.

A growing number of studies have revealed a correlation between levels of worry and negative problem orientation, supporting the position that individuals with chronic worry endorse a negative problem orientation (Davey, 2006; Dugas & Robichaud, 2007). In one particular study, using university students and self-report questionnaires, negative problem orientation was found to make a specific contribution to the prediction of worry, such that the relationship between worry and negative problem orientation was independent of other related personality characteristics (e.g., pessimism, low self-mastery, and neuroticism; Robichaud & Dugas, 2005).
In addition, negative problem orientation was found to be a stronger prediction of worry than of depression, still accounting for 5.6% of the variance in worry scores as compared to 1.6% of the variance in depression scores when all other related personality characteristics were taken into account. Based on this finding, Robichaud and Dugas argue that negative problem orientation is a sensitive and specific marker of chronic worry.

Studies with clinical (i.e., GAD) participants also demonstrated positive and strong correlations between negative problem orientation and worry (Dugas et al., 1997; Dugas, Letarte, Rheaume, Freeston, & Ladouceur, 1995). Similarly, studies using interview procedures instead of self-report measure also yielded similar results. For instance, Robichaud and colleagues (Robichaud, Dugas, & Radomsky, 2006 as cited in Dugas & Robichaud, 2007) asked participants to describe in an interview setting the problems solving steps they would take to resolve a real-life problem. They found that negative problem orientation interacted with participants’ level of intolerance of uncertainty to determine participants’ ability to deal with their problems. Results revealed that for participants with intolerance of uncertainty, negative problem orientation was related to poor performance of problem-solving steps for their problems. Given that individuals with GAD typically have high levels of intolerance for uncertainty, Dugas and Robichaud (2007) argue that negative problem orientation may have a significant role on these individuals’ ability to cope with difficulties.

Although researchers make no inferences about the etiology of negative problem orientation, the set of beliefs that constitute this concept is very similar to the beliefs that Bowlby postulated would originate from insecure attachment dyads (i.e., concerning a child’s perceptions of problems or threats in her environment and her confidence to cope effectively with them; Bowlby, 1969/1982, 1973). In addition, negative problem orientation appears to constitute one
aspect of negative self-organizations, as proposed by the EFT model of GAD and worry, characterized by the individual’s lack of confidence in his or her ability to cope with the demands of life (Watson & Greenberg, in press). This study will investigate the relationships among negative problem orientation, insecure attachment, worry, and GAD.

**Differentiation of Self.** The EFT model suggests that another feature of negative self-organizations is negative ways of relating to self and others (Watson & Greenberg, 2015, in press). The intra- and inter-personal difficulties experienced by individuals with GAD may be explained by these individuals’ difficulties managing relational distance (i.e., emotional proximity and distance within relationships). These difficulties most likely originated in early interpersonal contexts (either marked by enmeshment or neglect) in which individuals with GAD were expected to put aside their needs and prematurely do the planning and caretaking of themselves and/or their caregivers (Cassidy, 1995). These individuals may have not felt sufficiently safe to distance themselves from their caregivers while maintaining their attachment bond. This in turn may have compromised the development of their emotion regulation strategies and their emerging sense of self as independent agents in their lives (Fonagy, Gergely, Jurist, & Target, 2002; Schore, 1994).

Individuals with GAD may have learned to either reduce relational distance (i.e., having no interpersonal boundaries) by taking on their attachment figure’s needs above of theirs or to drastically increase relational distance (i.e., cutting off bonds) by physical and/or emotional isolation in order to earn love and acceptance in their attachment dyads (Cassidy, 1995). As they matured, these individuals may have had difficulty to differentiate themselves from important others and to respond autonomously to their environments without using their relationships as an emotion regulation process (Cassidy, 1995). As a result, they may have learned to negotiate
interpersonal closeness and distance by moving emotionally and reactively into fusion (e.g., being intrusive or over-nurturing) or cut off (e.g., being cold) in important relationships.

This concept of relational distance has most often been discussed under Murray Bowen’s family systems theory (Bowen 1978; Kerr & Bowen, 1988). In developing his theory, Bowen (1978) coined the term differentiation of the self to refer to an individual’s ability to function autonomously in the world while also remaining emotionally connected to a significant relationship system (typically the family system; Kerr & Bowen, 1988). According to Bowen, the process of differentiation requires that individuals separate themselves from emotional attachments in their family systems without cutting off completely from family members. He asserted that differentiation of self falls along a continuum from low (undifferentiated) to high (differentiated) functioning. Individuals at the lower end of the continuum tend to have difficulties negotiating and navigating emotional and physical closeness, and, particularly under stress, may lose their sense of self in relationships or the connection to important others (Kerr & Bowen, 1988). Conversely, individuals at the higher end of the continuum tend to experience increased intimacy in interpersonal relationships along with a clear establishment of self-identity boundaries and engagement in goal directed behaviours (Kerr & Bowen, 1988).

Bowen suggested that differentiation of self include both intrapsychic and interpersonal aspects. The intrapsychic aspects involve cognitive and emotional processes and an individual’s ability to distinguish and properly use both these processes (e.g., intellect and feelings) to respond to their environments. The interpersonal aspects, on the other hand, involve an individual’s ability to negotiate being close yet separate in important relationships. Building from Bowen’s theory, Skowron and Friedlander (1998) further articulated the factors that theoretically make up differentiation of self as Bowen proposed. They operationalized
differentiation of self as having four domains: the “I position, emotional cutoff, fusion with others, and emotional reactivity.

The “I” position is believed to be seen in more differentiated individuals who have a defined sense of self and are capable of setting and keeping relationship boundaries, such that they can adhere thoughtfully to their convictions even when pressured to do otherwise. Individuals experiencing emotional cutoffs with others feel threatened by intimacy and adopt behavioural defenses (e.g., overfunctioning, denial, distancing) for fear of interpersonal engulfment. Those who are fused cannot separate themselves from their need for the acceptance and approval of others. They tend to become overinvolved with others and attempt to over-identify with closed others. Emotionally reactive individuals are those guided by their emotionality. They tend to respond to the environment with emotional lability or hypersensitivity. Skowron and Friedlander argue that high differentiation of self would be manifested by the ability to take an I-position and make an intellectual decision even when distressing emotions are present, rather than emotionally react to others and seek to cut them off or to fuse with them.

Bowen proposed that an individual’s level of differentiation of self would have a number of psychological consequences, for both interpersonal and intrapersonal adjustment (Bowen, 1976; Bowen & Kerr, 1988). Indeed, previous research has shown that differentiation of self is associated with stress and coping (Murdock & Gore, 2004), separation anxiety (Peleg, Halaby, & Whaby, 2006), college student stress and adjustment (Skowron et al., 2004), adult well-being (Skowron, Holmes, & Sabatelli, 2003), social anxiety (Peleg-Popko, 2002), and marital adjustment (Skowron, 2000).
Although very few in number, studies have also demonstrated associations between differentiation of self and attachment experiences (Skowron & Dendy, 2004; Thorberg & Lyvers, 2006). For instance, Skowron and Dendy (2004) examined whether lower differentiation of self would be associated with greater adult attachment insecurity (i.e., attachment anxiety and avoidance). In their study, more than two hundred adults completed online self-report measures of adult attachment and differentiation of self. Their results confirmed significant relations between low differentiation of self and insecure attachment. Hierarchical multiple regression findings revealed that 40% of the variability in attachment anxiety scores and 62% of the variability in attachment avoidance scores were shared with differentiation of self scores, respectively. Greater attachment anxiety and avoidance were both associated with greater emotional reactivity, emotional cutoff, fusion with others, and problems taking an “I” position (Skowron & Dendy, 2004). No research to date directly tested Bowen’s proposition about differentiation of self in relation to GAD and worry.

**Emotion Dysregulation**

Research accumulated thus far is consistent with the EFT proposition that emotional dysregulation is one of the major risk factors for chronic worry and GAD (Mennin et al., 2002, 2005, Mennin et al., 2004). There is also ample evidence in the psychological literature documenting the link between attachment injuries and emotion regulation skills (Cassidy, 1994; Fuendeling, 1998; Mikulincer et al., 2003; Schore & Schore, 2008). Emotion regulation has been defined as the “ability to tolerate, be aware of, put into words, and use emotions adaptively, to regulate distress and promote needs and goals” (Elliot, Watson, Goldman, & Greenberg, 2004, p. 32). Watson and colleagues (Elliot, Watson, Goldman, & Greenberg, 2004; Kennedy-Moore &
Watson, 1999; Watson & Prosser, 2004) suggest that the effective modulation of emotions involves different but interrelated cognitive-affective processes.

For emotion regulation to occur effectively, Watson and colleagues (Elliot et al., 2004; Kennedy-Moore & Watson, 1999; Watson & Prosser, 2004) state that individuals are required to: (a) become aware of emotional arousal, (b) label their emotional experience accurately, (c) consider their emotional experience valued and acceptable, (d) modulate their level of arousal and expression in ways that enhance their functioning to meet their needs and goals, and (e) reflect on their emotional experience to integrate it into other aspects of their selves and environment. The key idea within this model is that the ability to engage in each of these processes is thought to lead to effective emotion regulation. Conversely, skills deficits in emotional processing and/or motivated efforts aimed at altering or suppressing one’s level of engagement in these processes are expected to lead to disruptions and strains in the regulation of emotional experiences (Elliot et al., 2004; Kennedy-Moore & Watson, 1999; Watson & Prosser, 2004).

Building on the Process Model of Affect Regulation developed by Watson and colleagues (Elliot et al., 2004; Kennedy-Moore & Watson, 1999; Watson & Prosser, 2004), Rodrigues and Watson (2011) have provided a practical, simplified illustration of how insecure attachment experiences may lead to the development of poor emotion regulation through either heightening or suppression of affective states. Figures 1 and 2 show how insecure attachment, characterized by the two dimensions of attachment anxiety and attachment avoidance (Brennan, Clark, & Shaver, 1998; Fraley & Waller, 1998), leads to the poor regulation of cognitive-affective processes consisting of emotion regulation.
Specifically, figure 1 shows that anxiously attached individuals having learned to modulate their affective experiences from a perspective of vigilance and fear, tend to limit their affect regulation skills to heightened negative affectivity, selective and/or distorted accessibility to affect-related information, and dysfunctional rumination. Figure 2 shows that individuals with avoidant attachment style, on the other hand, having learned to modulate their affective experiences from a position of mistrust and self-reliance, tend to miss the adaptive aspects of affect regulation by blocking affective experiences from awareness, denying affective experiencing, repressing or suppressing negative emotional memories, and distancing themselves from distressing cues. Broadly, these illustrations demonstrate that if a sense of security has never been fostered within individuals, they remain in a state of hypervigilance or self-reliance working to avoid what they perceive to be emotionally overwhelming stimuli.

Figure 2. Process Model of Affect Regulation in anxious attachment (Rodrigues & Watson, 2011).
The association between emotion regulation and attachment depicted above has been well documented in research (Fuendeling, 1998; Lopez & Brennan, 2000; Mikulincer & Shaver, 2007). The psychological literature, both theoretical and empirical, shows that there are consistent patterns of association between adult attachment styles and emotion regulation. For the most part, securely attached individuals have been found to display more adaptive emotion regulation skills than insecure attached individuals as evidenced by their increased ability to experience, symbolize, acknowledge, and express their affective experiences openly and flexibly (Fuendeling, 1998; Lopez & Brennan, 2000; Meins, Harris-Waller, & Loyd, 2008; Mikulincer, 1997, 1998; Mikulincer & Orbach, 1995; Mikulincer & Shaver, 2007; Montebarocci, Codispoti, Baldaro, & Rossi, 2004; Searle & Meara, 1999).

Figure 3. Process Model of Affect Regulation in avoidant attachment (Rodrigues & Watson, 2011).
Mikulincer and colleagues (Mikulincer, 1997, 1998; Mikulincer & Orbach, 1995; Mikulincer & Shaver, 2007), in particular, have developed a consistent program of research demonstrating the associations between emotion regulation and attachment organization. For instance, Mikulincer and Orbach (1995) found that securely versus insecurely attached individuals differ in terms of intensity of, attention given to and accessibility to affective information. In their study, Israeli students were asked to recall early experiences of anger, anxiety, sadness, and happiness while retrieval times were recorded. After recalling emotional memories, subjects were then asked to rate the intensity of emotions felt in each recalled event. Mikulincer and Orbach found that students with attachment avoidance were the least efficient at recalling sad and anxious memories (i.e., they had the longest retrieval times), while students with anxious attachment showed the highest accessibility for negative memories (i.e., they had the shortest retrieval times). Securely attached students fell in between the two insecure attachment groups in terms of accessibility of sad and anxious memories. Securely attached students also took longer to recall negative rather than positive emotional memories, whereas anxiously attached students took longer to recall positive rather than negative emotional memories. Moreover, avoidant students rated emotional memories as less intense than did secure individuals, whereas anxious students reported having experienced stronger emotions than secure students. Memories of securely attached students fell in between the two insecure attachment groups.

In another study, Mikulincer (1997) found that secure individuals were more tolerant of ambiguity, more curious, and more open to new information when making social judgments than individuals with insecure attachment styles. In contrast, insecurely attached individuals tended to be uncomfortable with uncertainty and to rely on prior knowledge (to the exclusion of new
information) when making social judgments. Mikulincer and Arad (1999) extended these findings by examining attachment style differences in cognitive openness within the context of close relationships. They found that when the participants’ descriptions of their partners’ behaviours were congruent with their expectations, both secure and insecure individuals did not differ in cognitive openness. However, when information regarding their partners’ behaviours was novel and incongruent with their expectations, secure individuals displayed more cognitive openness than insecure individuals. Specifically, when their partners’ behaviours were incongruent, secure individuals were more likely to revise and change their descriptions of their partners than their insecure counterparts. Altogether, insecurely attached individuals appeared to have more difficulty reflecting, processing and integrating incongruent information about themselves and their environments than securely attached individuals.

In regard to the association between emotion regulation and worry, it has been shown that deficits in emotion regulation contribute to high worry (Mennin et al., 2002, 2005). Borkovec and colleagues (Borkovec 1994; Borkovec et al., 2004) explain that the verbal-linguistic nature of worry interferes with all the cognitive-affective processes of effective emotion regulation. According to the authors, worry denies the individual full access to the experience of fear (with all its referents – behavioural, cognitive, and emotional – including mental images and unpleasant autonomic activation). Mennin and colleagues (Mennin et al., 2004) go further to suggest that worry represents a “multi-component syndrome” involving both significant deficits in emotional processing – characterized by increased sensitivity to negative emotion (e.g., experiencing negative emotions more intensively and as more aversive) – as well as motivated efforts to control or suppress emotional experience through over-reliance on “verbal thoughts” or cognitive activity. Thus, from both the cognitive avoidance and emotion dysregulation
perspectives of worry, individuals with chronic worry are believed to experience disruptions in all steps in the process of effective emotion regulation. These disruptions interfere with the experiencing of emotions which impact the individual’s well-being and serves to reinforce and maintain their anxiety responses.

Empirical studies support the position that individuals with chronic worry have difficulties with the cognitive-affective processes involved in the effective regulation of emotions (Mennin et al., 2002, 2005; Roemer et al., 2005). As noted earlier, Mennin and colleagues (2005) demonstrated that individuals with chronic worry report having more intense emotional experiences, having difficulty naming and understanding emotions, difficulty accepting their emotional experience (especially negative emotions), and greater difficulty self-soothing after experiencing negative emotions than nonanxious individuals. Correspondingly, Roemer and colleagues (2005) found that individuals with chronic worry exhibited greater endorsement of their emotions as threatening and unwanted, which in turn was associated with greater fear and avoidance of the experience of emotion. Individuals with GAD have also been shown to view their worry as threatening and as having difficulties accepting the experiencing of anxiety, which perpetuates a cycle of meta-worry or "worry about worry" (Wells, 2004).

Despite these associations between attachment and emotion regulation as well as emotion regulation and worry, very little research has investigated the relationship among all variables. There is one recent study by Marganska and colleagues (Marganska, Gallagher, & Miranda, 2013) which examined the relationship among emotion dysregulation, insecure attachment, and GAD. Using self-report measures in a sample of over two hundred college students, the authors found that anxious attachment styles (i.e., preoccupied and fearful avoidant attachment styles) predicted symptoms of GAD. In addition, lack of acceptance of negative emotions, perceived
limited access to effective emotion regulation strategies, and inability to refrain from impulsive
behaviours when distressed, fully mediated the associations between anxious attachment and
GAD symptomatology. Marganska’s study provides preliminary evidence that emotion
dysregulation skills (related to emotional acceptance and modulation) mediate the relationship
between attachment anxiety and worry. As noted earlier, however, the association between
attachment anxiety and worry has not been consistently demonstrated, as studies have also found
worry to be associated with dismissing attachment styles (Bifulco et al., 2006; Mickelson et al.,
1997). More research is necessary to fully understand attachment-related differences underlying
worry. The current study hopes to investigate the relationship between attachment and emotion
regulation in adults reporting worry.

The Current Study

The main purpose of this dissertation is to investigate the propositions articulated by the
EFT model of GAD which views the disorder as reflecting negative self-organizations and
emotion dysregulation as a function of insecure attachment experiences. To this end, this
dissertation operationalized some of the concepts of the EFT model, as outlined in figure 1, by
focusing on early attachment experiences and attachment styles as representing aspects of
emotion schematic memories and attachment injuries; low differentiation of self, low self-
estee, and negative problem orientation as representing aspects of negative self-organizations
and a vulnerable sense of self; and emotion dysregulation. This dissertation sought to examine
the relationships among these variables and their contributions to worry and GAD.

Following on the suggestion of previous research demonstrating that worry, while
characteristic of GAD, exists independently of GAD and therefore would benefit from being
studied in its own right (Hirsch et al., 2013; Ruscio, 2002; Ruscio & Borkovec, 2004; Ruscio et al., 2001), this dissertation also sought to investigate the relationships among the aforementioned variables and their contributions to worry, separately from GAD.

**Hypothesis**

1. Negative early attachment experiences would be significantly and positively associated with GAD and worry.

2. Negative early attachment experiences would be significantly and positively associated with insecure adult attachment style.

3. Negative early attachment experiences would be significantly and positively associated with emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self in adulthood.

4. Emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self would mediate the relationships between insecure adult attachment and GAD as well as adult attachment and worry.
Chapter 2: Method

Participants

The sample consisted of 218 adults, 178 (81.7%) females and 40 (18.3%) males. Their ages ranged from 18 to 63, with mean age of 30.76 (SD = 10.60). Their ethnic composition was 60.1% Caucasian, 13.8% East Asian, 11% South Asian, 4.1% African, 3.7% Latin/Hispanic, 1.8% Middle Eastern, and 5.5% other. The majority of participants were single (60.1%) while the remaining were married (22.5%), in a domestic partnership (13.8%), divorced (2.3%), or separated (1.4%). In terms of their education level, 32.7% of participants had a university degree, 24.8% had a post-graduate degree, 21.6% had a high school diploma or GED, 13.8% had a college degree, and 2.8% had completed grade school. Table 1 summarizes participants’ demographics information.

Data were originally collected on 326 adults, but as described above, only 218 participants completed the study. One hundred and eight participants (77 females and 31 males) were excluded from analysis due to noncompletion (e.g., did not complete any measures beyond the demographics section of the online survey). There was a significant gender difference between participants who completed the study and those who were excluded from further analyses \([\chi^2(1) = 3.96, p < .05]\), with more women completing the study. There were no significant differences between participants who completed the online questionnaires and those who were excluded from further analyses on remaining demographic variables: age, \(t(324) = -.96, p = .34\); ethnicity, \(\chi^2(6) = 5.19, p = .52\); marital status, \(\chi^2(5) = 10.39, p = .06\); and education, \(\chi^2(4) = 4.86, p = .30\).
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Participants who agreed to participate in the study completed a series of questionnaires assessing demographic information, memories and perceptions of attachment experiences with caregivers, early life filial responsibility, adult attachment, differentiation of self, self-esteem, negative problem orientation, emotion regulation, worry, and generalized anxiety.
Measure Assessing Demographic Information.

The following questionnaire was created to assess participants’ demographic information.

Demographics Questionnaire. The demographics questionnaire (see Appendix B) gathered general participant information such as age, gender, ethnicity, years of education, and relationship status.

Measures Assessing Attachment Experiences.

The following measures were used to assess early attachment experiences (i.e., memories and perceptions of childhood experiences with caregivers) and adult attachment style.

Egna Minuen Betraffande Uppfostram – Short Form (s-EMBU, Swedish acronym for My Memories of Upbringing; Arrindell et al., 1999). The s-EMBU is a 23-item self-report retrospective attachment inventory, designed to measure adults’ perceptions of their parents’ rearing style. The s-EMBU is a short version of the original 81-item EMBU (Perris, Jacobsson, Lindstrom, von Knorring, & Perris, 1980) and assesses perceptions of parental rejection, emotional warmth, and overprotection. Items are answered on a four-point Likert scale with reference to each parent separately, ranging from 1 (“No, never”) to 4 (“Yes, most of the time”).

The rejection subscale refers to parental rearing that is characterized by physical punishment, rejection of the child as an individual, hostility, derogation, and lack of consideration for points of view and needs of the child. The emotional warmth subscale refers to an upbringing characterized by warmth and loving attention, parent helping the child, aiding through problems, and child’s ability to confide in the parent. The overprotection subscale refers to parental behaviour indicative of excessive protection from negative experiences, high degree of intrusiveness, high expectancy to know all about the child, and imposition of strict regulations
and high standards of accomplishments. The s-EMBU is a valid and reliable instrument for retrospective assessment of parental rearing behavior, with Cronbach’s alpha ranging from .75 to .88 (Arrindell et al., 2001). In the current sample the s-EMBU was found to be reliable, proving good internal consistency (Cronbach’s alpha ranging from .87 to .94).

Filial Responsibility Scale – Adult (FRS-A; Jurkovic, Thirkeld, Morrell, 2001). Drawing from the original Parentification Questionnaire (Sessions and Jurkovic, 1982), the FRS-A is a 60-item questionnaire that measures the subjective experience of caretaking responsibility and fairness between child and parent(s) in the family of origin. The first part of the FRS-A, consisting of 30 items, assesses for past levels of caretaking responsibilities and fairness in the respondent's family of origin. The second part of the FRS-A, consisting of 30 items as well, assesses for current levels of caretaking responsibilities and fairness in the respondent’s family of origin. Part I of the questionnaire include items pertaining to the respondent’s “childhood years” or the time when they were growing up in their families. The items in Part II refer to the present, that is, the respondent’s “current” experiences in their families of origin. Because the focus of this study was on experiences in childhood, participants only completed Part I of the FRS-A which assesses past perceptions during childhood. Part I of the FRS-A is divided in three subscales: instrumental caregiving (e.g., “I often did the family’s laundry”), emotional caregiving (e.g., “I often felt like a referee in my family”), and unfairness (e.g., in my family, I gave more than I received”). Past research supports the reliability and validity of the FRS-A subscales, with internal consistency reliabilities reported ranging from .72 to .87 (Jurkovic et al., 2001). In the current sample, the FRS-A was found to have good internal consistency (Cronbach’s alpha ranging from .83 to .89).
Three-category Attachment Measure (Hazan & Shaver, 1987). This is a 3-item questionnaire designed to measure an individual’s attachment style. The three attachment styles are: (1) avoidant, characterized as being afraid of intimacy, experiencing emotional highs and lows during relationships, along with jealousy; (2) anxious/Ambivalent, characterized by strong need for constant reciprocation and validation in intimate relationships, along with emotional highs and lows; and (3) secure, characterized by friendly, trusting, and happy intimate relationships. This measure assesses attachment qualitatively (categorically) and is forced-choice. All three attachment styles are described briefly and respondents choose the style that fits them best. The construct validity of this measure has been established in more than 30 studies conducted since 1987 (see Shaver & Clark, 1994, and Shaver & Hazan, 1993, for reviews).

Measures Assessing Self-organization.

The following measures were used to assess self-organization, including a measure for assessing self-concept (i.e., self-esteem), a measure for assessing a sense that the self is incompetent to cope with challenges (i.e., negative problem orientation), and a measure for assessing negative ways of relating to self and others (i.e., differentiation of self).

Rosenberg Self-esteem Scale (RSES; Rosenberg, 1965). The RSES is a 10-item self-report questionnaire that measures global self-esteem (e.g., “On the whole, I am satisfied with myself”). Each item is rated on a four-point Likert-type scale ranging from 1 (“strongly agree”) to 4 (“Strongly disagree”). The scale is considered a reliable and valid measure of global self-esteem through all ages (Chiu, 1988; Gray-Little, Williams, & Hancock, 1997) and has demonstrated good construct validity in correlations with a number of other measures of similar constructs (Coopersmith, 1981; Crandall, 1973; Fleming & Courtney, 1984; Robins, Hendin, &
The scale has high reliability including test-retest correlations in the range of .82 to .88, and Cronbach's alpha for various samples in the range of .77 to .88 (Blascovich & Tomaka, 1993; Robins, Hendin, & Trzesniewski, 2001; Rosenberg, 1986). In the current sample, Cronbach’s alpha was at .90 indicating high reliability.

Negative Problem Orientation Questionnaire (NPOQ; Robichaud & Dugas, 2005). The NPOQ is a 12-item measure that assesses the dysfunctional cognitive set of a negative problem orientation. Participants rate each item on a 5-point Likert scale, according to how they react or think when confronted with a problem. Sample items include “I see problems as a threat to my well-being” and “I often see problems as bigger than they really are.” The NPOQ was translated from the original French version of the measure, which was found to display excellent internal consistency ($\alpha = .90$), convergent and discriminant validity, and was unifactorial (Gosselin, Pelletier, & Ladouceur, 2001). An initial psychometric evaluation of the English version suggested that the NPOQ is also unifactorial, with excellent internal consistency (Cronbach’s alpha = .92), high test–retest reliability ($r = .80$), and good convergent and discriminant validity (Robichaud & Dugas, 2005). In the current sample, the NPOQ was found to have good internal consistency (Cronbach’s alpha = .94).

Differentiation of Self Inventory - Revised (DSI-R; Skowron & Schmitt, 2003). The DSI is a 46-item self-report measure based on Bowen’s (1976, 1978; Kerr & Bowen, 1988) family systems theory. The DSI-R yields a total score as well as scores on four dimensions of differentiation: emotional reactivity (ER), emotional cutoff (EC), fusion with others (FO), and I-position (IP). ER refers to being unable to modulate intense emotional experience (e.g., “I’m very sensitive to being hurt by others”). EC assesses fear of intimacy and a tendency to withdraw when stressed (e.g., “I tend to distance myself when people get too close to me”). FO
reflects the tendency to become overinvolved in relationships, taking on significant others’
values and beliefs without questioning (e.g., ‘‘I feel a need for approval from virtually everyone
in my life’’). Finally, the IP scale assesses the ability to maintain a clear sense of self in
interactions with others (e.g., ‘‘I usually do not change my behavior simply to please another
person’’). Items are rated on 6-point Likert-type scales. High scores represent greater
differentiation of self (i.e., lower emotional reactivity, lower emotional cutoff, less fusion with
others, but a greater ability to take an ‘‘I’’ position). The subscales have demonstrated good
convergent and divergent validity (Skowron & Schmitt, 2003). Construct validity for the DSI-R
was established in relation to measures of attachment security and individuation (Skowron &
Schmitt, 2003). Scores on the DSI-R has been predictive of marital adjustment among husbands
and wives, intergenerational intimacy, and levels of interpersonal problems (Skowron, Stanley,
range from .81 (IP) to .89 (ER), with a full-scale alpha of .92. In the current sample, the DSI was
found to have good internal consistency with Cronbach’s alpha coefficients greater than .84 for
each subscale and internal consistency of .92.

Measures Assessing Emotion Regulation.

The following measure was used to assess participants’ ability to regulate emotions.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS
is a brief 36-item self-report questionnaire designed to assess multiple aspects of emotion
regulation. The measure yields a total score as well as scores on six scales derived through factor
analysis: (a) non-acceptance of emotional responses (e.g., ‘‘When I’m upset, I become
embarrassed for feeling that way’’); (b) difficulties engaging in goal directed behaviour; (e.g.,
‘When I’m upset, I have difficulty getting things done’), (c) impulse control difficulties (e.g., ‘When I’m upset, I feel out of control’); (d) lack of emotional awareness (e.g., ‘I pay attention to how I feel’); (e) limited access to emotion regulation strategies (e.g., ‘When I’m upset, I believe that there is nothing I can do to make myself feel better’); (f) lack of emotional clarity (e.g., ‘I am confused about how I feel’). Each item is rated on a 5-point Likert type scale, with 1 as “almost never” and 5 as “almost always”. Higher scores indicate greater difficulties in emotion regulation. Gratz and Roemer (2004) report Cronbach’s alpha coefficients greater than .80 for each subscale and internal consistency of .90, as well as, good test-retest reliability and adequate convergent validity with established measures of emotion dysregulation in non-clinical samples. In the current sample, Cronbach’s alpha was greater than .80 for each subscale and .94 for the full scale, indicating good internal consistency.

Measures Assessing GAD and Worry.

The following measures were used to assess GAD and Worry, respectively.

**Generalized Anxiety Disorder Questionnaire-IV (GAD-Q-IV; Newman et al., 2002).**

The GAD-Q-IV is a 9-item self-report diagnostic measure of generalized anxiety disorder based on DSM-IV diagnostic criteria. The questions reflect the presence or absence of excessive or uncontrollable worry within the last six months, as well as accompanying physical symptoms, such as restlessness, sleep disturbances, irritability, or muscle tension. The GAD-Q-IV can also be scored continuously using a sum total, with scores ranging from 0 to 13. This measure has demonstrated good test-retest reliability, convergent validity and discriminant validity (Luterek, Turk, Heimberg, Fresco, & Mennin, 2002; Newman et al., 2002).
Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990). The PSWQ is one of the most widely used self-report measures of trait worry designed to capture specific qualities of pathological worry such as excessiveness and uncontrollability. It contains 16 items that focus on the frequency and intrusiveness of one’s worry. Each question is scored on a 1 (“Not at all typical”) to 5 (“Very typical”) Likert scale. Scores range from 16 to 80, with high scores representing more severe worry. A cut-off score of 62 is used to differentiate individuals with clinical levels of worry (i.e., high worriers) from low-worriers (Behar, Alcaine, Zuellig, & Borkovec, 2003; Fresco, Mennin, Heimberg, & Turk, 2003). This measure has good internal consistency, good construct validity, and has demonstrated good test-retest reliability over periods as long as 10 weeks (Meyer et al., 1990; Molina & Borkovec, 1994; Stöber, 1998; Robichaud & Dugas, 2005). In the current sample, the PSWQ was found to have good internal consistency (Cronbach’s alpha = .94).

Procedure

Participants were recruited through several social networking websites (including Kijiji, Craigslist and Facebook) where a link was posted for them to fill out a 30-40-minute online survey (created and delivered on FluidSurvey.com). An information and informed consent sheet was presented to participants upon entering the online survey website (Appendix A). Participation in the study was voluntary and participants filled out the survey online at their leisure. At the conclusion of the survey, participants were provided with a list of community resources, including the researchers’ contact information in the event that they felt any anxiety, or had any questions or concerns regarding the study. In addition, when participants completed
the survey, they were given the option to enter into a draw for a prize in appreciation of their
time. Participants who chose to enter the draw were asked to provide their email address which
were kept separate from their survey data.
Chapter 3: Results

Data Analysis

Prior to conducting the primary analyses, SPSS 22.0 was used to screen all variables for accuracy of data entry, missing values, and to test for univariate normality. Distributions for the sEMBU Maternal Rejection variable, sEMBU Paternal Rejection variable, and sEMBU Paternal Overprotection variable were found to be moderately to highly skewed, with the majority of participants reporting few early rejecting experiences with mothers and fathers, and few overly protective and intrusive behaviours from fathers. In addition, the distribution for the GAD-Q-IV variable was found to be somewhat bimodal, with clusters of participants reporting either lower or higher generalized anxiety symptoms. To assess whether these deviations from normality would affect subsequent data analyses in any meaningful way, Pearson and Spearman correlations were computed and the significance of the differences between correlation coefficients were calculated using the Fisher r-to-z transformation. No statistically significant differences were found between Pearson and Spearman correlation coefficients, suggesting no substantive differences between parametric and non-parametric correlation statistics. Given that the methodology of this study was primarily correlational and no benefit was associated with transformation of skewed and non-normal data (Nefzger & Drasgow, 1957; Norris & Aroian, 2004), original scores were used in analyses.

Univariate multicollinearity was also tested by screening for large bivariate correlations between variables (a cutoff of $r \geq .80$ is typically used; Tabachnick & Fidell, 2007) and by examining collinearity statistics. However, no evidence of multicollinearity was found.

Gender differences were not included as analyses given the disproportionate ratio of female-to-male participants. Additionally, the three adult attachment styles (i.e., secure,
avoidant, and anxious/ambivalent) derived from the Adult Attachment Scale were transformed into a dichotomous variable representing attachment security and insecurity. This transformation was due to the low frequency of the anxious/ambivalent attachment style (11% of the sample) as compared to avoidant (46% of the sample) and secure (43% of the sample) attachment styles. There was no evidence indicating that anxious/ambivalent and avoidant participants differed in important ways with respect to the variables in this study.

Table 2 presents the distribution of participants according attachment organization in this study as a function of worry and generalized anxiety group membership, prior to transforming the adult attachment styles into a dichotomous variable. Note that participants in this study were regarded as “high worriers” if their PSWQ total score was greater than or equal to 62 (Behar, Alcaine, Zuellig, & Borkovec, 2003; Fresco, Mennin, Heimberg, & Turk, 2003). Participants were categorized as meeting DSM-IV criteria for GAD using the GAD-Q-IV (to assess the presence/absence of symptoms).

<table>
<thead>
<tr>
<th>Attachment Styles</th>
<th>Low Worriers</th>
<th>High Worriers Only</th>
<th>GAD analogues</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>67</td>
<td>23</td>
<td>4</td>
<td>94</td>
</tr>
<tr>
<td>Avoidant</td>
<td>41</td>
<td>40</td>
<td>20</td>
<td>101</td>
</tr>
<tr>
<td>Anxious/Ambivalent</td>
<td>9</td>
<td>9</td>
<td>5</td>
<td>23</td>
</tr>
<tr>
<td><strong>Column Totals</strong></td>
<td><strong>117</strong></td>
<td><strong>72</strong></td>
<td><strong>29</strong></td>
<td><strong>218</strong></td>
</tr>
</tbody>
</table>
Preliminary analysis involved examining descriptive data for childhood attachment experiences, adult attachment, emotion dysregulation, negative problem orientation, self-esteem, differentiation of self, worry, and GAD. Independent-samples t tests were used to compare securely and insecurely attached individuals on all variables used in this study. One-way ANOVAs were used to compare individuals with low worry, high worry and who meet diagnostic criteria for GAD on all variables assessed here. Person’s correlations were also performed to investigate the relationships among variables of interest. Linear regression analyses were performed to evaluate hypotheses 1 – 3.

Next, multiple mediation analyses were conducted using PROCESS macro in SPSS (Hayes, 2012) to assess pathways from insecure adult attachment experiences to worry and generalized anxiety through emotion regulation, self-esteem, differentiation of self, and negative problem orientation. Regression analyses of total effect, direct effect, and bootstrapped bias-corrected 95% confidence intervals of the indirect effect were computed with 5000 bootstrapped samples, as recommended by Preacher and Hayes (2008). Confidence intervals that did not contain zero indicated a significant indirect effect (mediation; Preacher & Hayes 2008). Bootstrapping methods for examining mediating effects have been used in this study because they offer increased statistical power (and control over the type I error rate) without assuming multivariate normality in the sampling distribution (Mallinckrodt, Abraham, Wei, & Russell, 2006; Preacher & Hayes, 2008).

**Preliminary Analysis**

Descriptive statistics for memories of parental upbringing, filial responsibility, emotion dysregulation, self-esteem, differentiation of self, negative problem orientation, worry, and
generalized anxiety symptoms are presented for the total sample, and separately for attachment and worry groups, in Table 3. Overall, securely attached individuals reported significantly more positive memories of parental rearing than insecurely attached individuals, in terms of greater maternal emotional warmth and less parental rejection and overprotection. The only exception to this finding was perceptions of paternal emotional warmth, which did not differ significantly between attachment groups. Securely attached individuals also perceived their childhood interactions with families of origin as being significantly fairer as compared to insecurely attached individuals.

Individuals who were in the GAD analogue group reported significantly more negative memories of maternal and paternal rejection than individuals with high and low worry. Also, individuals in the GAD analogue group perceived their childhood interactions with their families of origin as being significantly less fair than high and low worriers. In terms of emotion dysregulation, securely attached individuals and low worriers reported less difficulties in emotion regulation than insecurely attached, high-worry, and individuals in the GAD analogue group. Additionally, securely attached individuals and low worriers reported greater self-esteem and higher levels of differentiation of self than their insecurely attached, high worry and analogue GAD counterparts. Furthermore, securely attached individuals and low worriers reported significantly less negative problem-solving beliefs than insecurely attached, high worriers, and individuals in the GAD analogue group. Finally, securely attached individuals endorsed significantly less worrying and generalized anxiety in comparison to insecurely attached individuals.

Bivariate correlations were also calculated to examine the relationships among the variables in this study. Results of correlational analysis presented in Table 4 indicate that
generalized anxiety symptoms were positively and significantly correlated with memories of parental rejection, memories of paternal overprotection, emotional dysregulation, perceptions of unfair childhood interactions with family of origin, negative problem orientation, and worry, and negatively correlated with maternal emotional warmth and differentiation of self. Correspondingly, worry was positively and significantly correlated with paternal rejection and overprotection, emotion dysregulation, and negative problem orientation, and negatively correlated with self-esteem and differentiation of self.

Negative memories of parental upbringing (i.e., parental rejection and overprotection) were positively and significantly correlated with adult attachment insecurity, negative problem orientation, and emotional dysregulation, and negatively correlated with self-esteem. Memories of maternal warmth was positively and significantly correlated with self-esteem and differentiation of self, and negatively correlated with adult attachment insecurity, emotion dysregulation and negative problem orientation. Memories of paternal overprotection were positively and significantly associated with adult attachment insecurity and emotion dysregulation, and negatively correlated with differentiation of self. With regards to parentification dimensions, perceptions of unfair childhood interactions with family of origin were positively and significantly correlated with adult attachment insecurity and emotional dysregulation, and negatively correlated with differentiation of self.
Table 3

Means, Standard Deviations and Group Differences for Memories of Upbringing, Filial Responsibility, Emotion Dysregulation, Self-esteem, Negative Problem Orientation, Differentiation of Self, Worry, and Generalized Anxiety

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Sample</th>
<th>Securely Attached</th>
<th>Insecurely Attached</th>
<th>Low Worriers</th>
<th>High Worriers Only</th>
<th>GAD Analogues</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 218</td>
<td>N = 94</td>
<td>N = 124</td>
<td>N = 117</td>
<td>N = 72</td>
<td>N = 29</td>
</tr>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
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<td>Memories of Upbringing</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>Rejection</td>
<td>13.04</td>
<td>12.00</td>
<td>13.83**</td>
<td>12.84</td>
<td>12.32</td>
<td>16.21*a</td>
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<tr>
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<td>(5.31)</td>
<td>(6.00)</td>
<td>(5.90)</td>
<td>(5.31)</td>
<td>(5.62)</td>
</tr>
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<td>18.19</td>
<td>16.33**</td>
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<td>(4.82)</td>
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<td>(6.30)</td>
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<td>13.33</td>
<td>13.90</td>
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<td>(6.73)</td>
<td>(8.57)</td>
<td>(7.56)</td>
<td>(7.85)</td>
<td>(8.69)</td>
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<td>Emotional Warmth</td>
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<td>16.18</td>
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<td>(6.97)</td>
<td>(6.10)</td>
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<td>22.00</td>
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<td>(6.83)</td>
<td>(9.07)</td>
<td>(7.96)</td>
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<td>Filial Responsibility</td>
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<td>Instrumental Caregiving</td>
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<td>85.07</td>
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<td>Negative Problem Orientation</td>
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<td>NPOQ</td>
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<td>26.21</td>
<td>35.78**</td>
<td>26.72</td>
<td>35.72</td>
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<td>(11.80)</td>
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<td>(11.64)</td>
<td>(9.83)</td>
<td>(11.08)</td>
<td>(8.50)</td>
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<td>Differentiation of Self</td>
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<td>DSI-R</td>
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<td>PSWQ</td>
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<td>(4.96)</td>
<td>(5.63)</td>
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<td>GAD-IV</td>
<td>5.83</td>
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<td>(3.48)</td>
<td>(4.08)</td>
<td>(3.57)</td>
<td>(3.08)</td>
<td>(0.68)</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01

*a Significant mean difference between High Worriers Only and GAD Analogues, p < .05
Table 4

Bivariate Correlations Between Memories of Upbringing, Filial Responsibility, Emotion Dysregulation, Self-esteem, Negative Problem Orientation, Differentiation of self, Worry, and Generalized Anxiety

<table>
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*p < .05, **p < .01
Analysis for Hypothesis 1

The first hypothesis involved examining the relationship between negative early attachment experiences and GAD as well as negative early attachment experiences and worry. It was hypothesized that negative early attachment experiences, represented here by measures assessing childhood memories of parental rejection, lack of emotional warmth, and overprotection as well as filial responsibility, would be positively correlated with both generalized anxiety symptoms and worry.

As indicated above and listed in Table 3, maternal rejection and lack of emotional warmth, and paternal rejection and overprotection were positively and significantly correlated with generalized anxiety symptoms. In addition, unfair early interactions with family of origin were positively and significantly correlated with generalized anxiety. Linear regression analysis was conducted to examine the relationship between those negative early attachment experiences and generalized anxiety. Results from this analysis are listed in Table 5. Altogether, maternal rejection and lack of emotional warmth, paternal rejection and overprotection, and past unfair interactions with family of origin accounted for only 7% of the variance in generalized anxiety scores, $F(5, 212) = 3.24, p > .01$. None of these early attachment experiences emerged independently as significant predictors of generalized anxiety.

With respect to worry, only paternal rejection and overprotection were significantly and positively associated with worry. To examine which of each of these early attachment experiences would best predict adult worry, linear regression analyses were conducted and results are presented in Table 6. When considered together, paternal rejection and overprotection
accounted for only 3% of the variance in worry scores, \( F(2, 215) = 3.54, p = .03 \). None of the predictor variables emerged independently as a significant predictor of worry.

### Table 5

*Regression Coefficients for Predicting Generalized Anxiety from Negative Early Childhood Experiences*

<table>
<thead>
<tr>
<th>Negative Early Childhood experiences</th>
<th>Generalized Anxiety</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>( \beta )</td>
<td>( R^2 )</td>
</tr>
<tr>
<td>Maternal Rejection</td>
<td>.062</td>
<td>.058</td>
<td>.086</td>
<td>.071</td>
</tr>
<tr>
<td>Maternal Lack of Emotional Warmth</td>
<td>-.018</td>
<td>.069</td>
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<td>Paternal Rejection</td>
<td>.050</td>
<td>.056</td>
<td>.095</td>
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<tr>
<td>Paternal Overprotection</td>
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<td>Unfairness</td>
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<td>.115</td>
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</tbody>
</table>

### Table 6

*Regression Coefficients for Predicting Worry from Negative Early Childhood Experiences*

<table>
<thead>
<tr>
<th>Negative Early Childhood experiences</th>
<th>Worry</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE</td>
<td>( \beta )</td>
<td>( R^2 )</td>
</tr>
<tr>
<td>Paternal Rejection</td>
<td>.163</td>
<td>.175</td>
<td>.090</td>
<td>.032</td>
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<tr>
<td>Paternal Overprotection</td>
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<td>.167</td>
<td>.103</td>
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### Analysis for Hypothesis 2

The second hypothesis involved examining the relationship between negative early attachment experiences and adult attachment. It was hypothesized that childhood memories of parental rejection, lack of emotional warmth, and overprotection would be associated with an insecure attachment style in adulthood. In addition, instrumental and expressive early filial
responsibilities, and perceptions of unfair childhood interactions with family of origin would be associated with insecure adult attachment style.

As mentioned above and presented in Table 3, insecure adult attachment style was significantly positively correlated with memories of parental rejection and overprotection, maternal lack of emotional warmth, and unfair filial responsibility experiences in childhood. Those early attachment experiences accounted for 12% of the variance in insecure adult attachment, $F(6, 211) = 4.77, p > .001$. Results of linear regression are presented in Table 7. However, only unfair interactions with family of origin emerged as a significant predictor of insecure adult attachment style over and above the other childhood experiences and memories, $\beta = .19, p < .05$.

**Table 7**

*Regression Coefficients for Predicting Adult Attachment from Negative Early Childhood Experiences*

<table>
<thead>
<tr>
<th>Negative Early Childhood experiences</th>
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<tr>
<td>Maternal Rejection</td>
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<tr>
<td>Maternal Overprotection</td>
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<tr>
<td>Maternal Lack of Emotional Warmth</td>
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</tr>
<tr>
<td>Paternal Rejection</td>
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<tr>
<td>Paternal Overprotection</td>
<td>.011</td>
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<tr>
<td>Unfairness</td>
<td>.012</td>
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</table>

*p < .05*
Analysis for Hypothesis 3

The third hypothesis involved examining the relationships between negative early attachment experiences and emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self. It was hypothesized that negative early attachment experiences characterized by childhood memories of parental rejection, lack of emotional warmth, and overprotection would be associated with emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self. Correspondingly, instrumental and expressive early filial responsibilities, and perceptions of unfair childhood interactions with family of origin would be associated with impairments in emotion regulation, self-esteem, problem orientation, and differentiation of self.

As shown in table 3, parental rejection and lack of emotional warmth, maternal overprotection, and unfair interactions in the family of origin were significantly and positively correlated with emotional dysregulation, low self-esteem, and negative problem orientation. Paternal overprotection also correlated significantly and positively with emotion dysregulation. Maternal lack of emotional warmth and overprotection, paternal rejection and overprotection, and unfair interactions in the family of origin were positively associated with low differentiation of self. As series of linear regression analyses revealed that early attachment experiences accounted for 10% of the variance in emotion dysregulation scores, $F(7, 210) = 4.51, p > .001$ and maternal overprotection was a significant predictor of emotion dysregulation over and above the other childhood experiences and memories, $\beta = .19, p = .04$. With respect to self-esteem, none of the early attachment experience variables emerged independently as a predictor variable, although together they accounted for 14% of the variance in self-esteem scores, $F(6, 211) = 5.73$, $p > .001$. Similar results were found for negative problem orientation and differentiation of self,
where none of the early attachment experience variables emerged as predictors variables independently, but together they accounted for 12% and 9%, respectively of the variances in negative problem orientation scores, $F(6, 211) = 5.73, p > .001$, and differentiation of self scores, $F(5, 212) = 4.01, p < .01$. Results of linear regression analyses are presented on Tables 8, 9, 10, and 11.

Table 8
Regression Coefficients for Predicting Emotion Dysregulation from Negative Early Childhood Experiences

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<td>Maternal Overprotection</td>
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<td>Paternal Lack of Emotional Warmth</td>
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<td>Unfairness</td>
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*p < .05

Table 9
Regression Coefficients for Predicting Self-esteem from Negative Early Childhood Experiences

<table>
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<th>Negative Early Childhood experiences</th>
<th>Self-esteem</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Maternal Rejection</td>
<td>-.009</td>
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<tr>
<td>Maternal Lack of Emotional Warmth</td>
<td>.173</td>
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<td>Maternal Overprotection</td>
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<tr>
<td>Paternal Rejection</td>
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<tr>
<td>Paternal Lack of Emotional Warmth</td>
<td>.128</td>
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<td>Unfairness</td>
<td>-.059</td>
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Table 10
Regression Coefficients for Predicting Negative Problem Orientation from Negative Early Childhood Experiences

<table>
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<td>Maternal Lack of Emotional Warmth</td>
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<td>Maternal Overprotection</td>
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<td>Paternal Lack of Emotional Warmth</td>
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<td>.072</td>
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Table 11
Regression Coefficients for Predicting Differentiation of Self from Negative Early Childhood Experiences

<table>
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Analysis for Hypothesis 4

The fourth hypothesis in this study involved examining the roles of emotion regulation, self-esteem, negative problem orientation and differentiation of self as intervening variables in the relationship between insecure adult attachment and worry, and insecure adult attachment and generalized anxiety. It was expected that emotion dysregulation, low self-esteem, negative
problem orientation, and low differentiation of self would mediate the relationship between insecure adult attachment and worry, and insecure adult attachment and GAD symptoms. Results of multiple mediations are presented in Tables 12 and 13, and Figures 3 and 4, for worry and generalized anxiety, respectively. First, total, direct, and total indirect effects were calculated to test the hypothesis that together, the set of proposed intervening variables mediate the effect of insecure adult attachment on worry and generalized anxiety.

With respect to worry, mediation results indicated that the total effect of insecure adult attachment on worry ($\beta = .32, p < .001$) became nonsignificant when mediating variables (i.e., emotion regulation, self-esteem, negative problem orientation, and differentiation of self) were included in the model (direct effect of insecure adult attachment on worry: $\beta = .01, p = .89$). Bootstrapping analysis revealed that the total indirect effect of insecure adult attachment on worry through the four mediating variables was significant, with an unstandardized point estimate of 9.19 and a 95% BC confidence interval of 6.47 to 12.22.

A similar finding was revealed with respect to generalized anxiety symptoms, where the total effect of insecure adult attachment on generalized anxiety ($\beta = .39, p < .001$) became nonsignificant when mediating variables were included in the model (direct effect of insecure adult attachment on generalized anxiety: $\beta = .09, p = .12$). When all four mediating variables (i.e., emotion regulation, self-esteem, negative problem orientation, and differentiation of self) were included in the mediation model, bootstrapping procedures indicated that the total indirect effect on generalized anxiety was significant, with an unstandardized point estimate of 2.47 and a 95% BC confidence interval of 1.80 to 3.21.
### Table 12

**Mediation of the Effect of Insecure Adult Attachment on Worry through Emotion Regulation, Self-esteem, Negative Problem Orientation, and Differentiation of Self**

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<td>.14</td>
<td>.89</td>
<td>-3.34</td>
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<tr>
<td>Total indirect effect</td>
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<td>1.48</td>
<td></td>
<td></td>
<td>6.48</td>
</tr>
<tr>
<td><strong>Specific indirect effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotion Regulation</td>
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<td>1.15</td>
<td></td>
<td></td>
<td>-1.88</td>
</tr>
<tr>
<td>Self-esteem</td>
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<td>1.00</td>
<td></td>
<td></td>
<td>-.37</td>
</tr>
<tr>
<td>Negative Problem Orientation</td>
<td>2.85</td>
<td>1.09</td>
<td></td>
<td></td>
<td>.99</td>
</tr>
<tr>
<td>Differentiation of Self</td>
<td>4.48</td>
<td>1.51</td>
<td></td>
<td></td>
<td>1.73</td>
</tr>
</tbody>
</table>

*Note. BC CI = bias-corrected confidence interval. *p < .05 (significant indirect effect)*

### Table 13

**Mediation of the Effect of Insecure Adult Attachment on Generalized Anxiety through Emotion Regulation, Self-esteem, Negative Problem Orientation, and Differentiation of Self**

<table>
<thead>
<tr>
<th></th>
<th>Point estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>95% BC CI</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
</tr>
<tr>
<td>Total effect</td>
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<td>.52</td>
<td>6.22</td>
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<tr>
<td>Direct effect</td>
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<td>1.54</td>
<td>.12</td>
<td>-.22</td>
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<td>Total indirect effect</td>
<td>2.47</td>
<td>.36</td>
<td></td>
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<td>1.80</td>
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<tr>
<td><strong>Specific indirect effects</strong></td>
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<tr>
<td>Emotion Regulation</td>
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<td>-.04</td>
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<td>Self-esteem</td>
<td>.50</td>
<td>.27</td>
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<td>.01</td>
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<tr>
<td>Negative Problem Orientation</td>
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<td>.31</td>
<td></td>
<td></td>
<td>.20</td>
</tr>
<tr>
<td>Differentiation of Self</td>
<td>.63</td>
<td>.39</td>
<td></td>
<td></td>
<td>-.12</td>
</tr>
</tbody>
</table>

*Note. BC CI = bias-corrected confidence interval. *p < .05 (significant indirect effect)
To examine individual mediators in the context of a multiple mediation model, the specific indirect effects for each presumed mediator variable (i.e., emotion regulation, self-esteem, negative problem orientation, and differentiation of self) were also investigated. With respect to worry, an examination of the specific indirect effects indicated that differentiation of self and negative problem orientation emerged as significant mediators of the indirect path from insecure adult attachment. Pairwise contrasts indicated that none of these mediators was of significantly greater magnitude than the other. Paths $a$ and $b$ in Figure 4 indicate that greater attachment insecurity in adulthood was related to lower differentiation of self and greater negative problem orientation, which in turn were associated with higher levels of worry.

In the case of generalized anxiety, findings revealed that negative problem orientation and self-esteem were significant mediators of the indirect path from insecure adult attachment. Again, examination of indirect effect pairwise contrasts revealed that none of these mediators was of significantly greater magnitude than the other. Paths $a$ and $b$ in Figure 5 shows that greater attachment insecurity was related to greater negative problem orientation and lower self-esteem, which in turn were associated with higher levels of generalized anxiety.
Figure 4. Mediation model of insecure adult attachment and worry through emotion dysregulation, self-esteem, negative problem orientation, and differentiation of self. Values represent standardized regression coefficients. *p < .05, **p < .01, ***p < .001

Figure 5. Mediation model of insecure adult attachment and generalized anxiety through emotion dysregulation, self-esteem, negative problem orientation, and differentiation of self. Values represent standardized regression coefficients. *p < .05, **p < .01, ***p < .001
To gain further understanding about the potential directionality of effects among variables, this study also explored a series of alternative mediational models in which the position of the mediator and the outcome variables were switched (i.e., reverse mediation; Kenny, Kashy, & Bogler, 1998). In the reverse mediation models, worry and generalized anxiety served as mediator variables while the constructs representing self-organization (i.e., emotion regulation, self-esteem, negative problem orientation, and differentiation of self) served as outcome variables (e.g., insecure adult attachment → worry → emotion dysregulation). Results revealed that in all reverse mediational models, worry and generalized anxiety also partially mediated the relationships of insecure adult attachment to emotion regulation, self-esteem negative problem orientation, and differentiation of self, suggesting that there are bidirectional associations of worry and GAD to the variables representing self-organization. Results of reverse mediation analyses can be found on tables 14 and 15 for worry and generalized anxiety, respectively, in the appendix section (i.e., Appendix C).
Chapter 4: Discussion

The purpose of this study was to investigate the propositions of the EFT model of GAD which views the disorder as reflecting negative self-organizations and emotion dysregulation as a function of attachment injuries (Watson & Greenberg, 2012; Watson & Greenberg, 2015, in press; Watson, 2015). To this end, this study operationalized some of the concepts of the EFT model, as outlined in Figure 1, by focusing on early attachment experiences and attachment styles as reflecting aspects of attachment injuries; low self-esteem, low differentiation of self, and negative problem orientation as reflecting aspects of a negative self-organization, and emotion dysregulation. This study sought to examine the relationships among these variables and their contributions to both GAD and worry.

There were two main propositions that this study purposed to empirically address that have been suggested as important within the emotion-focused perspective of GAD. The first proposition considered the importance of insecure attachment in the etiology of GAD and worry. It was asserted at the outset of this study that negative early attachment experiences would be significantly and positively related to both GAD and worry. These hypotheses have been substantiated, although the magnitude of correlations were modest. This study demonstrated that GAD and worry correlated modestly with a number of negative early attachment experiences, some of which were not found to be shared across the two constructs. Findings revealed that paternal rejection and overprotection were positively correlated with worry whereas maternal rejection, lack of emotional warmth, and overprotection as well as paternal rejection and overprotection and unfair family interactions were closely related to generalized anxiety.
The finding that negative paternal experiences were significantly and positively correlated with both worry and generalized symptoms suggests that paternal experiences may have an important impact on children’s psychological functioning with respect to these constructs. It has been proposed that fathers have a crucial role in helping individuals develop autonomy and a sense of personal agency, as fathers’ interactions with their children are typically characterized by more play and other recreational (exploratory) activities and with interactions associated with instrumental goals or mastery activities (Bogels & Phares, 2008; Collins & Russel, 1991). In laboratory problem-solving tasks, fathers have been shown to display more facilitative communications about tasks whereas mothers tended to be less consistent (either directive or distracting) with respect to the laboratory tasks (Collins & Russel, 1991). It is possible that fathers are more likely to exhibit behaviours that may influence worry by fostering or dampening confidence in their children’s ability to cope with challenging tasks, which may subsequently be associated with generalized anxiety. Clearly, more research is needed to evaluate the differential impact of paternal and maternal caregiving on worry and generalized anxiety.

It is important to note that the negative early experiences with caregivers assessed in the current study explained only a small amount of variance in worry and generalized anxiety. However, the findings from this study support previous research with stronger effects indicating that childhood experiences marked by parental rejection, control and unfair interactions are associated with worry and generalized anxiety (Brown & Whiteside, 2008; Kertz & Woodruff-Borden, 2011; Van Eijck, Branje, Hale, & Meeus, 2012). In addition, when participants in this study were classed as Low Worriers, High Worriers, or GAD Analogues, it was found that GAD Analogues (i.e., those who met DSM-IV criteria for GAD using the GAD-Q-IV) reported
significantly higher parental rejection and greater unfair interactions with caregivers as compared to High Worriers and Low Worriers, suggesting that GAD may be associated with a more upsetting developmental history.

This study also demonstrated that negative early experiences with caregivers are associated with adult attachment insecurity. Specifically, participants who endorsed higher attachment insecurity perceived their parents’ behaviours as characterized by higher rejection and overprotection, and described their experiences in childhood as more unfair. Participants with higher attachment insecurity also perceived their mothers as colder or lacking in emotional warmth. Although the strength of the associations between negative early parental experiences and insecure adult attachment were found again to be small in this study, they were nonetheless consistent with the results of several previous studies that found moderate significant correlations between adult attachment and early relationships (Hamilton, 2000; Pinquart, Feubner, & Ahnert, 2013; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000).

The finding that perceived unfair interactions with family of origin emerged as a significant predictor of insecure adult attachment style over and above other childhood experiences suggests that perceptions of equity, reciprocity, and the extent to which individuals receive appreciation for their caregiving activities within the family may have an important influence in the development of representational models of attachment. It may be that perceptions of unfair familial interactions engender in children a negative set of expectations about self and others which they later incorporate into an insecure working model used to make meaning of future relationships and ways of interacting.

Watson (2011, Watson & Greenberg, in press) suggests that negative early experiences, such as unfair familial interactions, may contribute to more than just representational models of
self and others. Watson asserts that childhood experiences contribute to the development of emotion schemes which contain a large proportion of affective and non-verbal experiences. According to Watson, emotion schemes incorporate information of all types and levels (i.e., body, movement, affect, motivation, and cognition) that altogether convey a “felt sense” of oneself in relation to the world and others. This felt sense is an affectively-toned sense of self coherence and agency which is primarily an experiential, not a cognitive, concept. From this perspective, unfair familial interactions would not only lead to negative expectancies about self and others, but also a felt sense of oneself as rejected and vulnerable coupled with feelings of shame and powerlessness.

It has been suggested that perceived unfairness in interactions within the family is associated with high levels of emotional distress and it also moderates the relationship between caregiving activities within the family and behavioral self-regulation (suppression of aggression, impulse control, and consideration of others), such that high levels of caregiving has been shown to predict high levels of self-regulation but only when perceived unfairness was low (Kuperminc, Jurkovic, & Casey, 2009). This means that caregiving that is perceived to be unfair within the family may contribute to behavioral self-dysregulation as well as feelings of loneliness, frustration, and anger. Children may learn to cope with these experiences by deactivating their attachment needs and also by compromising their self-image (as unable to assert themselves within the family) as opposed to that of caregivers, resulting in insecure working models of others and self (West & Keller, 1991).

The fact that associations in this study were weaker than found in the literature (e.g., Bokhorst, Bakermans-kranenburg, Pasco, Van ijzendoorn, Fonagy, et al., 2003) could be explained by the attachment questionnaire used in this study (Hazan & Shaver, 1987) which is
brief and not usually thought to be related to child-parent interactions. This questionnaire assesses adult attachment style more explicitly in the context of romantic relationships rather than in relation to caregivers. With that in mind, it is notable that this study found an association between childhood experiences and adult attachment.

This study also found, as predicted, significant and positive associations between negative early attachment experiences and emotion regulation difficulties, low self-esteem, negative problem orientation, and low differentiation of self. For the most part, parental rejection, control, and lack of emotional warmth as well as unfair filial interactions were all positively related to a moderate degree to adult emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self. Additionally, both maternal and paternal characteristics showed similar associations with those adult variables.

In only one instance was there evidence for parenting-specific associations: Maternal overprotection was found to predict adult emotion dysregulation above and beyond other early rearing experiences and memories. This result suggests that maternal overprotective and intrusive behaviours may be particularly relevant to one’s ability to regulate distressing emotions. It has been suggested that overprotective and intrusive parenting styles may lead to increased neurobiological activity and emotional overarousal in children which compromise their attentional skills and subsequently their ability to learn effective regulatory strategies, including engaging in goal directed behaviours when distressed (Eisenberg, Zhou, Spinrad, Valiente, Fabes et al., 2005; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Portman, 2009). Children raised with overprotective and/or punitive mothers may also be more likely to model their caregivers’ behaviours, and in addition adopt a low perception of control of life events (i.e., external locus of
control where life is perceived to be determined by factors outside of oneself), both of which undermine adaptive learning and regulation (Portman, 2009).

Watson and Greenberg (in press) suggest that when children are overly protected by their caretakers, an enmeshed relationship develops in which they are required to forfeit their needs in the service of their caregiver’s needs for control and mastery. As a result, these children do not develop adequate skills to care for themselves, nor do they develop an ability to soothe themselves when faced with challenges, as they rely on others to have their needs met and anxieties eased. The authors argue that these children’s sense of agency, mastery, and competence becomes restricted contributing to the development of negative self-organizations and emotion processing difficulties.

Rubin and colleagues (Rubin, Cheah, & Fox, 2001) add that overprotective parenting prevents children from engaging in necessary self-initiated coping techniques (including exploration and play) which make up part of their behavioural self-regulation system. They note that lack of practice and experience in behavioural self-regulation can be detrimental to children’s later emotional development, particularly to those who are by disposition poor self-regulators, as they may not learn to overcome their dispositional vulnerabilities (Rubin et al., 2001). On the other hand, parenting styles that encourage exploration and play enable the development of self-regulation, emotional competence, and self-efficacy in children, as they are able to learn that through exploration they can reduce their initial levels of emotional arousal evoked by novel and unfamiliar situations (Rubin et al., 2001).

As suggested by the aforementioned findings, negative early attachment experiences may contribute to a problematic concept of self and psychosocial adjustment. Individuals who experienced parental rejection, control, lack of affection as well as unfair filial interactions may
be more likely to have a poorly defined sense of self, characterized by deficits in emotion regulation, low self-esteem, decreased confidence in problem-solving abilities, and difficulties with autonomy and intimacy. While the associations between negative early attachment experiences and emotion regulation, self-esteem, negative problem orientation, and differentiation of self found in this study were not large, they are consistent with the ideas put forth by the EFT model of GAD (Watson & Greenberg, 2012, Watson & Greenberg, 2015, in press; Watson, 2015) and previous research (Bogels & Brechman-Toussaint, 2006; Portman, 2009; Schwartz, Thigpen, & Montgomery, 2006). The size of these associations, however, implies that there may be other stressors that likely affect emotion regulation, self-esteem, problem-orientation, and differentiation of self beyond the negative early attachment experiences measured herein, such as dispositional factors.

The second main proposition that this study investigated pertained to the relationships between insecure adult attachment and generalized anxiety as well as insecure adult attachment and worry, and the mediating roles of emotion regulation, self-esteem, negative problem orientation and differentiation of self in those relationships. As predicted, individuals with an insecure adult attachment style reported greater worry and generalized anxiety as compared to individuals with secure attachment. Also consistent with expectations, emotion regulation, self-esteem, negative problem orientation, and differentiation of self showed significant correlations with insecure adult attachment, worry, and generalized anxiety. In line with existing models of GAD and worry as well as an emotion-focused perspective of GAD and worry, the findings revealed that insecure adult attachment was positively correlated with emotion dysregulation and negative problem orientation, and negatively correlated with self-esteem and differentiation of self. Correspondingly, emotion dysregulation and negative problem orientation were positively
correlated with worry and generalized anxiety whereas self-esteem and differentiation of self were negatively correlated with worry and generalized anxiety.

The positive associations between adult attachment insecurity and generalized anxiety as well as adult attachment insecurity and worry found in this study are consistent with other studies investigating the relationship between adult attachment and anxiety disorders (Cassidy, 2009; Nolte et al., 2011; Picardi, Caroppo, Fabi, Proietti, Di Gennaro, et al., 2013; Van Eijck et al., 2012). In these studies, individuals with anxiety disorders, including inpatients diagnosed with generalized anxiety disorder, endorsed higher levels of attachment insecurity as compared to healthy individuals and patients with other chronic health conditions. Indeed, Picard and colleagues (2013) found associations of similar strength between attachment anxiety and avoidance with anxiety disorders, suggesting that attachment insecurity in general has adverse effects on one’s psychosocial development and functioning. Although associations between insecure adult attachment styles did not differ among anxiety disorders (e.g., panic disorder, social anxiety disorder, and generalized anxiety disorder), Picard and colleagues found that their results were nevertheless independent of depression.

Given that worry and generalized anxiety disorder are characterized by cognitive and emotional processes such as the tendency to process events as out of one’s control and difficulties modulating affect, it is not surprising that this study found them to be significantly and positively correlated with a negative problem orientation and emotion dysregulation. This finding is consistent with all theoretical models on worry described in this study (Borkovec et al., 2004; Mennin et al., 2002, 2005; Watson & Greenberg, in press) and previous research that has observed worry to be associated with dysfunctional beliefs about distressful situations and one’s ability to manage them, and emotion dysregulation (Davey et al., 1996; Dugas et al., 1997;
Mennin et al., 2002, 2005). However, this study has extended previous research by revealing that self-esteem and differentiation of self also have a negative relationship with worry. This finding lends support to the EFT model of GAD in which worry is viewed as a strategy for overcoming a fragile and undifferentiated self (Watson & Greenberg, 2015, in press).

More importantly, this study provided support for the mediational processes suggested in the EFT model to explain the link between attachment insecurity and GAD, including worry. Of the four intervening variables examined, two were supported as full mediators of the relationship between insecure adult attachment and worry as well as the relationship between insecure adult attachment and generalized anxiety. With respect to worry, negative problem orientation and differentiation of self were supported as full mediators of the relationship between insecure adult attachment and worry. With regards to generalized anxiety, negative problem orientation and self-esteem emerged as full mediators of the relationship between insecure adult attachment and generalized anxiety. Interestingly, these findings suggest that there is a different pattern of mediation for insecure adult attachment and worry than for insecure adult attachment and generalized anxiety. Although negative problem orientation helped explain both relationships, it appears that low differentiation of self may be particularly relevant in explaining attachment-related differences in worry whereas low self-esteem may be an important contributing factor in the insecure adult attachment and generalized anxiety relationship.

The finding that emotion dysregulation did not emerge as a significant mediator in the multiple mediation model accounting for the relationship between insecure adult attachment and worry as well as insecure attachment and generalized anxiety was somewhat surprising given the large amount of studies documenting the associations of worry, generalized anxiety, and insecure adult attachment with emotion dysregulation (Mennin et al., 2002, 2005; Mikulincer et al.,
2003). A possible reason for this is that, at least in the case of worry, the differentiation of self measure used in this study tapped into somewhat similar dimensions of emotion dysregulation (i.e., emotional reactivity and emotional cutoff) that could be associated with worry. In fact, differentiation of self and emotion regulation were found to be highly correlated in this study’s sample.

In the case of GAD, as crucial as emotion dysregulation may be in the generation of this disorder thorough its association with worry, it may be subsequent to a negative self-concept lying at the core of this disorder’s pathology. This position is in line with the emotion-focused perspective of GAD which proposes that the principal antecedent of worry in GAD is a vulnerable self-organization constructed around unsymbolized experiences of sadness, shame and fear (Watson & Greenberg, in press). It is interesting to note that of all variables used in the study to represent a negative self-organization, self-esteem appears to be the one that approximates the most to the idea formulated by the EFT model concerning a vulnerable self-organization in which a felt sense of the self as weak and defective presides over other elements (e.g., cognitive self-evaluations) relating to the self. In comparison to negative problem orientation and differentiation of self, self-esteem is the construct that can better capture how one generally feels about oneself (Brown, 2014). Not surprisingly, it emerged as a mediator of the relationship between insecure attachment and GAD but not in the relationship between insecure attachment and worry.

The fact that this study also found evidence for reverse mediations, that is, mediations by worry and generalized anxiety on emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self suggests that these constructs (representing negative self-organization) may have a reciprocal relationship with worry and generalized anxiety.
Current theorizing and research on worry and GAD (Borkovec et al., 2004; Dugas & Robichaud 2007; Mennin, 2004; Newman & Llera 2011; Watson & Greenberg, in press; Wells 2006) provide strong support for the notion that emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self are precursors of worry and GAD. However, this study acknowledges the possibility that worry and GAD may precede and also be triggered by aspects of negative self-organization. Recognizably, the use of cross-sectional data to explore a set of associations for longitudinal propositions, such as those articulated by the EFT model and existing models of worry, demands interpretative caution. That being said, Hayes (2013) argues that such a data analytic approach is sometimes merited, particularly for hypothesis generation and preliminary investigations. Future studies should examine the temporal relationship between the constructs in this study in order to elucidate the question of causality.

There were other several findings revealed in this study that are worth noting. For instance, the distribution of adult attachment styles in the current study (i.e., 43% secure, 46% avoidant, and 11% anxious/ambivalent) was found unexpectedly to differ somewhat from distributions found in previous large-sample studies assessing both college students and nationally representative adults (Bifulco et al., 2006; Mickelson et al., 1997; Shaver & Hazan, 1993). In these prior studies, approximately half the number of avoidant individuals and twice the number of anxious individuals were reported. In addition, in these studies, 50% to 60% of their samples comprised secure individuals.

This discrepancy may have resulted from the online survey methodology employed here. Although there are many benefits to online survey methodologies, selection bias is a limitation that has to be taken into consideration when conducting online research (Wright, 2005). In the case of this study, it is possible that individuals with an avoidant attachment style were more
likely to access and complete the online survey than individuals with secure and/or
anxious/ambivalent attachment styles. The likelihood of this occurring could be questioned,
however, when one considers recent research suggesting that anxiously attached individuals
make greater use of social media than individuals with attachment avoidance (Oldmeadow,
Quinn, & Kowert, 2013). More research is needed to elucidate this matter.

Another possible explanation for the discrepancy in the attachment distribution found in
the present study is that individuals who worry – and perhaps would also be interested in
participating in a study about worry – are less likely to endorse an anxious attachment style. If
this were the case with this sample, then this finding would contradict postulations that anxious
attachment is more closely associated with worry and generalized anxiety than avoidant
attachment (Cassidy, 1995; Nolte, Guiney, Fonagy, Mayes, & Luyten, 2011; Warren, Huston,
Egeland, & Sroufe, 1997), and would provide further support to studies in which dismissing and
avoidant attachment styles were found to be associated with generalized anxiety (Bifulco et al.,
2006; Mickelson et al., 1997).

This study also revealed that the majority of individuals experiencing high levels of
worry do not meet the diagnostic criteria for GAD. About a third of this study’s sample (72 cases
or 33%) received worry scores indicative of clinical worry while a far smaller subset of
participants (29 cases; 13% of entire sample; 40% of high worriers) met diagnostic criteria for
GAD. This finding is consistent with a previous study by Ruscio (2002) which also found similar
proportions of high worriers and those who met diagnostic criteria for GAD relative to a larger
sample of over a thousand undergraduate students. Similar to Ruscio’s study, the findings from
this study suggest that GAD is more than just high levels of worry and that GAD symptoms
associated with the distress or impairment caused by worry may be better at characterizing GAD rather than excessive and uncontrollable worry.

The findings that high worriers and GAD analogues differ in emotion regulation skills, self-esteem, negative problem orientation, and differentiation of self found here also suggest that good adjustment with respect to these psychological constructs may be important in preventing high worry from becoming clinically impairing. Replication of these findings and advances in our understanding of the similarities and differences between high worry and GAD will be crucial for both research and clinical perspectives in the preventive work of GAD.

Another unexpected finding in this study had to do with a small proportion of participants (4 cases or 2%) who met criteria for GAD but endorsed a secure adult attachment style. This would suggest that while there appears to be a relationship between insecure attachment and GAD, attachment insecurity may not be necessary to determine the diagnostic status of this disorder. Other factors such as specific life events and temperamental traits may have been involved in the development of generalized anxiety symptoms among these subset of adults in our sample. Another explanation may be that self-report biases (e.g., a preference for positive attachment and parental rearing descriptions) may have impacted these individuals’ responding style. Unfortunately, given the small number of cases, further investigations with this small subset of participants were not rendered possible in this study. Future research would benefit from further investigation on this topic.

Limitations and Future Research

Several limitations of this study must be considered when interpreting findings. A major limitation is the correlational, cross-sectional design used here which did not permit causal
statements about the links among variables. Although based on strong theoretical grounds, the current study could not determine the direction of the relationships among variables. Specifically, it is not clear whether variables representing negative self-organization (i.e., emotion dysregulation, low self-esteem, negative problem orientation, and low differentiation of self) mediate the relationships between insecure adult attachment and worry and generalized anxiety or vice-versa. This study explored reverse mediation models and found that there are some bidirectional associations between variables representing negative self-organization and worry and generalized anxiety. Future research should address this finding to better understand the ways in which these constructs, as well as insecure adult attachment, are related.

Longitudinal and experimental studies examining the temporal development of attachment, negative self-organization, worry, and generalized anxiety appear to be a logical next step in this line of research.

Another limitation of this study is that all of its variables were assessed using solely self-report questionnaires. It is possible that the significant correlations found here were confounded by common method variance. Moreover, self-report questionnaires have been criticized in the literature as a method for assessing implicit and unconscious processes, such as attachment (Crowell & Treboux, 1995). This is especially relevant for this study because individuals with chronic worry and generalized anxiety have been shown to have difficulties reporting on their emotional and cognitive experiences (Mennin, Turk, Heimberg, & Carmin, 2004). Thus, their self-report on internal processes presented here may be unreliable and may need to be interpreted with caution. It would have been desirable to use additional and alternative measures to validate participants’ self-report ratings (e.g., observation ratings). It would also have been beneficial to include a larger or interview-based measure of attachment so that ratings would have been more
reliable, and differences between anxious and avoidance insecure attachment could have been investigated.

Lastly, the sample of this study was comprised predominately by females such that the findings presented here may not generalize to more diverse demographic groups. Also participants included in this study were recruited from the community and thus represent an analogue sample experiencing worry and generalized anxiety symptoms. Although it is possible that a number of these participants have clinical levels of worry and generalized anxiety (as indicated by their scores on PSWQ and GAD-V-IV questionnaires), their responses may not be generalized to clinical samples who have been diagnosed by more structured diagnostic methods (e.g., interviews).

Future research should explore the associations between attachment and worry as well as attachment and generalized anxiety using longitudinal designs in larger and more heterogeneous samples with alternative measures of attachment styles and early childhood experiences as well as worry and generalized anxiety. Furthermore, temperament, cognitive styles, and other environmental factors have all been shown to be associated with worry and generalized anxiety (Rapee, 2001; Roemer, Orsillo, & Barlow, 2002). Future work should investigate the predictive value of these factors compared to insecure attachment.

**Conclusion**

This dissertation has attempted to investigate some of the propositions of an emerging model of generalized anxiety disorder (GAD) stemming from an emotion-focused therapy (EFT) perspective, which views GAD as reflecting negative self-organizations and emotion dysregulation as a function of attachment injuries (Watson & Greenberg, in press). It has done so
by examining negative early attachment experiences and attachment styles, as representing attachment injuries; differentiation of self, negative problem orientation, and self-esteem, as representing negative self-organization; and emotion regulation dysregulation, and by investigating the relationships among these variables and their contribution to generalized anxiety and worry.

In agreement with the EFT model of GAD as well as existing research on worry and GAD, the results of the current study suggest that rejecting and unfair early attachment experiences may be characteristic of individuals with GAD. In addition, they demonstrate that attachment insecurity and associated vulnerable self-states – marked by low differentiation of self, low self-esteem, and negative problem orientation – as well as the inability to regulate emotions may be useful to understanding worry and generalized anxiety. This study also underlines the importance of negative self-processes concerning a sense of self as incompetent to cope with challenges (i.e., negative problem orientation), relating poorly to oneself and others (i.e., low differentiation of self), and as having little affection for one’s self concept (i.e., low self-esteem) in the relationship between attachment insecurity and worry and generalized anxiety.

The results presented here could be useful in informing therapeutic interventions tailored specifically to worry and generalized anxiety disorder. Particularly with respect to assessment of clients presenting concerns, this study suggests that clients who present in therapy as high worriers may not only have difficulties finding solutions to their problems because of their tendency to react to problems in a non-productive way, but they may also present with relational impairments, such as difficulties creating or maintaining a clear sense of self in their relationships with others. Likewise, assessment of clients presenting with generalized anxiety
symptoms is likely to uncover poor problem-solving ability as well as important low self-esteem issues. For the most part, treatment of chronic worry and generalized anxiety symptoms have focused exclusively on decreasing clients’ level of worry (Dugas & Robichaud, 2007; Ladouceur, Dugas, Freeston, Leger, Gagnon, et al., 2000; Leahy, 2006). However, this study suggests that therapy for individuals presenting with worry and generalized anxiety symptoms might also benefit from the assessment of clients’ attachment styles as well as self-differentiation and self-esteem, all of which could potentially be emotionally-anchored on maladaptive emotion schemes and a vulnerable self-organization.
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Appendice
Appendix A – Informed Consent

You are being invited to participate in a survey that examines the relationship between one’s childhood experiences and how one behaves and feels as an adult, with a particular focus on worry. This study is being conducted by Aline Rodrigues, Ph.D. student in Counselling & Clinical Psychology at the Ontario Institute for Studies in Education, University of Toronto (OISE/UT) and Dr. Jeanne Watson, OISE/UT. We hope that this study will result in improving our understanding of human development and the factors that contribute to well-being in families and across the life-span.

Anyone over the age of 18 is invited to take part in this study. Your participation is voluntary and you may refuse to participate or withdraw from the study at any time without any consequences. If you agree to participate, you will be asked to respond to general background questions and eleven questionnaires that require you to rate your childhood experiences with your parents as well as your general thoughts, behaviours, and feelings as an adult. The survey will take approximately 30 to 40 minutes to complete. Your answers will be kept confidential and no identifying information will be collected, except for your email address (for the prize draw described below) which will be deleted before any analyses are done.

In appreciation for your participation, you will have the option of being entered in a draw for a chance to win a $100 Amazon Online Gift Certificate.

There are no known risks associated with this study. However, some of the questions might lead you to think about negative emotions or experiences. In the case that any questions raise personal issues that you would like to discuss with a counsellor, you may contact us to direct you to a counsellor or you may use the “counselling resource sheet” provided at the end of this survey.

If you have any questions about your rights as a research participant, you may contact the University of Toronto Research Ethics Review Office by email at ethics.review@utoronto.ca or by phone at 416-946-3273. You can also contact Dean Sharpe at 416-978-5585.

If you would like more information about the survey or how the data will be used, please contact:

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Email: aline.rodrigues@mail.utoronto.ca
Phone: (647) 298-4050

Dr. Jeanne Watson, C. Psych.
Email: Jeanne.watson@utoronto.ca
Phone: (416) 978-0705

Below you will be prompted to indicate if you wish to participate in this study. Please click “I Consent” to indicate that you agree to participate in this study, that you have read and understood the information presented above, and that you are over 18 years of age. If you wish, you can print this information and consent page for future reference. Thank you very much for your time!
Appendix B – Demographics Questionnaire

1. What is your gender?
   - Male
   - Female

2. What is your age?

3. How would you describe your ethnicity? (Select one):
   - Native (e.g., First Nations, Metis)
   - Black African
   - Caucasian
   - Asian
   - South East Asian
   - Hispanic
   - Other ________________

4. What is your marital status?
   - Single
   - Married
   - Domestic Partnership
   - Separated
   - Divorced
   - Widowed

5. What is your highest level of education? (Select one)
   - Grade School
   - High School Diploma or GED
   - College or Trade School
   - Some University
   - University undergraduate degree
   - Post graduate degree
### Appendix C – Results of Reverse Mediation Analyses

Table 14

*Mediations of the Effect of Insecure Adult Attachment on Emotion Regulation, Self-esteem, Negative Problem Orientation, and Differentiation of Self through Worry*

<table>
<thead>
<tr>
<th></th>
<th>Point estimate</th>
<th>SE</th>
<th>t</th>
<th>p</th>
<th>95% BC CI</th>
</tr>
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<td><strong>Emotion Regulation (Outcome Variable)</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Total effect</td>
<td>22.47</td>
<td>3.04</td>
<td>7.40</td>
<td>&lt; .001</td>
<td>16.48 – 28.45</td>
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<tr>
<td>Direct effect</td>
<td>16.18</td>
<td>2.93</td>
<td>5.52</td>
<td>&lt; .001</td>
<td>10.40 – 21.96</td>
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<tr>
<td>Total indirect effect</td>
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<td>1.59</td>
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<td><strong>Self-esteem (Outcome Variable)</strong></td>
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<td></td>
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<tr>
<td>Total effect</td>
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<td>-6.00</td>
<td>&lt; .001</td>
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<tr>
<td>Direct effect</td>
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<td><strong>Negative Problem Orientation (Outcome variable)</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Total effect</td>
<td>9.57</td>
<td>1.48</td>
<td>6.46</td>
<td>&lt; .001</td>
<td>6.65 – 12.49</td>
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<tr>
<td>Direct effect</td>
<td>5.85</td>
<td>1.36</td>
<td>4.31</td>
<td>&lt; .001</td>
<td>3.17 – 8.53</td>
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<tr>
<td>Total indirect effect</td>
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<td>.86</td>
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<td>2.22 – 5.66</td>
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<td><strong>Differentiation of Self (Outcome Variable)</strong></td>
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</tr>
<tr>
<td>Total effect</td>
<td>-.75</td>
<td>.09</td>
<td>-8.76</td>
<td>&lt; .001</td>
<td>-.92 – -.58</td>
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<tr>
<td>Direct effect</td>
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<td>-.34 – -.13</td>
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*Note. BC CI = bias-corrected confidence interval.*
Table 15

Mediations of the Effect of Insecure Adult Attachment on Emotion Regulation, Self-esteem, Negative Problem Orientation, and Differentiation of Self through Generalized Anxiety

<table>
<thead>
<tr>
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<th>p</th>
<th>95% BC CI</th>
<th>Lower</th>
<th>Upper</th>
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<td><strong>Emotion Regulation (Outcome Variable)</strong></td>
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<td>Total effect</td>
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<tr>
<td>Total effect</td>
<td>-4.74</td>
<td>.79</td>
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<td>&lt; .001</td>
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<td>-3.18</td>
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<tr>
<td>Direct effect</td>
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<tr>
<td>Total indirect effect</td>
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<td></td>
<td>-3.51</td>
<td>-1.50</td>
<td></td>
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<tr>
<td><strong>Negative Problem Orientation (Outcome variable)</strong></td>
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<td></td>
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<tr>
<td>Total effect</td>
<td>9.57</td>
<td>1.48</td>
<td>6.46</td>
<td>&lt; .001</td>
<td>6.65</td>
<td>12.49</td>
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<tr>
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<td>1.40</td>
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<td>Total indirect effect</td>
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<tr>
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Note. BC CI = bias-corrected confidence interval.