

An Investigation of Cognitive Avoidance in Worry

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## ABSTRACT

### An Investigation of Cognitive Avoidance in Worry

Kathryn Sexton

These studies considered the nature of cognitive avoidance, a maintaining factor in worry and generalized anxiety disorder (Borkovec, Ray, & Stöber, 1998; Dugas, Gagnon, Ladouceur, & Freeston, 1998). First, the psychometric properties of the English translation of Gosselin et al.'s (2002) Cognitive Avoidance Questionnaire (CAQ) were examined. The CAQ assesses five cognitive avoidance strategies: Thought Substitution, the Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression. The CAQ was administered to 456 students at Concordia University in Montreal. The CAQ total scale and subscales demonstrated good to excellent internal consistency and good test-retest reliability. A confirmatory factor analysis supported the five-subscale structure, though the model's goodness-of-fit was lower than expected. Finally, the CAQ showed convergent validity with measures of worry, thought suppression, information-avoidant coping in controllable situations, and information-seeking coping in uncontrollable situations. The CAQ also demonstrated divergent validity, showing negative correlations with information-seeking in controllable situations. Subsequently, Study 2 examined whether two worry-related processes, negative beliefs about worry and the fear of anxiety, may be contributing to cognitive avoidance in worry. A total of 259 students participated in this study. In hierarchical multiple regression analyses, negative beliefs about worry and the fear of somatic symptoms of anxiety, rather than the fear of losing control over anxiety, were

found to predict cognitive avoidance. All process measures were significantly correlated with worry. Negative beliefs about intrusive thoughts, the fear of the anxiety symptoms, and cognitive avoidance showed stronger relationships with catastrophic worry than with generalized worry.

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## Dedication

I would like to dedicate this thesis to my loving parents for their advice and encouragement throughout my graduate studies, for their patience, support, and understanding at every point in my career decision-making, and for inspiring me (if unintentionally) to follow in their career footsteps. I would also like to dedicate this thesis to my partner, Aaron Lussier, who so generously put his best interests in graduate school aside to come and join me in Montreal for these two years of my Master's studies.

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### An Investigation of Cognitive Avoidance in Worry

Cognitive models of psychopathology propose that it is the significance or interpretation that people attach to their emotions, cognitions, behaviour, or physiological symptoms rather than the symptoms themselves that promotes the development of psychological disorders. In the area of anxiety, variations on this idea that the evaluation of cognitive, emotional, or physiological symptoms leads to an exacerbation of these symptoms is present in the dominant cognitive-behavioural theories of most anxiety disorders, including panic disorder, obsessive-compulsive disorder, and generalized anxiety disorder.

In panic disorder, for instance, Clark (1986) has suggested that it is the catastrophic misinterpretation of the physiological symptoms of anxiety that leads to panic attacks. Support for this theory has come from research in the area of anxiety sensitivity, the fear of anxiety and anxiety symptoms. Anxiety sensitivity has been repeatedly found to predict future panic attacks even when controlling for trait anxiety and history of panic (see for example, Schmidt, Lerew, & Jackson, 1999). As the anxiety sensitivity construct mainly assesses fear of the physiological symptoms of anxiety, these findings support Clark's theory that catastrophic misinterpretations of these symptoms are implicated in the development of panic disorder.

Similarly, beliefs about intrusive thoughts have been implicated in the development of obsessive-compulsive disorder (OCD). Rachman (1997) has proposed that catastrophic misinterpretations of the significance of intrusive thoughts promote the development and persistence of obsessions. Specifically, Rachman suggests that the appraisal of the thought as "very important, personally significant, revealing and

threatening or even catastrophic” (1997, p. 794) differentiates normal and clinical cognitive intrusions. Several negative beliefs have been identified in OCD. Tolin, Woods, and Abramowitz (2003) noted that beliefs about the importance of the intrusive thoughts predicted obsessive-compulsive symptoms. In other words, obsessive-compulsive symptoms are associated with a tendency to ascribe meaning to the content of an intrusive thought merely because the thought arose in consciousness. Janeck, Calamari, Riemann, and Heffelfinger (2003) also found that negative metacognitive beliefs about the importance of thoughts, termed cognitive self-consciousness, distinguished OCD patients from nonanxious participants. Salkovskis (1999) has highlighted the importance of a heightened sense of responsibility for intrusive thoughts in the development of OCD. Specifically, Salkovskis has noted that OCD patients feel an exaggerated sense of responsibility for the content of their intrusive thoughts and, to the extent that the intrusive thought raises awareness about possible danger, feel responsible if they do not act to prevent harm (Salkovskis, 1999). Finally, thought-action fusion, which consists of superstitious beliefs about the likelihood that intrusive thoughts will manifest themselves in reality or that these thoughts carry the same moral significance as would the act itself, has been implicated in OCD (Shafran, Thordarson, & Rachman, 1996).

In the study of generalized anxiety disorder (GAD) symptoms and processes, both positive and negative beliefs about worry have been implicated in the development of the disorder. Worry, the cardinal feature of GAD, has been found to relate to both positive beliefs about the usefulness of worry (for example, Dugas, Gagnon, Ladouceur, & Freeston, 1998) and negative beliefs about worry as a coping strategy (Davey, Tallis, &

Capuzzo, 1996; Holowka, Dugas, Francis, & Laugesen, 2000). Wells (1995, 1999, 2002), for instance, has proposed a metacognitive theory of GAD whereby negative appraisals of worries as uncontrollable and dangerous lead to high levels of meta- or type 2 worry, which he suggests distinguish GAD and nonclinical worries. Positive beliefs about worry, on the other hand, contribute mainly to type 1 worry, namely worry about common issues. Wells proposes that it is primarily the negative beliefs about worry and the resulting high levels of type 2 worry that lead to cognitive and behavioural avoidance and therefore impede processing of type 1 worries. The negative beliefs, which are maintained by the failure to process type 1 worries, ultimately lead to the development of the excessive and uncontrollable worry seen in GAD. In support of this metacognitive theory, Wells and Carter (1999) found that meta-worry predicted excessive generalized worry after controlling for the frequency of other types of worry. Finally, Wells and Carter (2001) found that negative beliefs about worry, and not positive beliefs about worry, distinguished a group of GAD patients from panic disorder, social phobia, depression and nonpatient groups.

Wells' metacognitive theory has also been extended to explain the phenomenology of rumination in depression. Papageorgiou and Wells (2001) suggested that rumination may consist of both a symptom of depression and a strategy employed to cope with depressed mood. Similar to Wells' (1995, 1999) model of GAD, Papageorgiou and Wells proposed that positive metacognitive beliefs about the use of rumination as a coping strategy in depression lead to higher levels of rumination, and that the relationship of rumination to depression is in turn mediated by negative metacognitive beliefs. Using

structural equation modeling, Papageorgiou and Wells (2003) demonstrated preliminary support for this theory.

These conceptualizations of panic disorder, OCD, GAD, and depression speak of a general tendency to form negative interpretations of internal events. In the case of OCD, GAD, and depression, these negatively interpreted internal events consist of thoughts. In GAD, these interpretations take the form of negative beliefs about worry. In OCD, the negative interpretations consist of negative beliefs about intrusive thoughts. In depression, these negative beliefs center on depressive repetitive thoughts, or rumination. In panic disorder, in contrast, the catastrophic misinterpretations focus on physiological symptoms rather than on thoughts. The concept of anxiety sensitivity (Reiss, 1991) captures mainly this fear of physiological symptoms of anxiety and was derived from research on panic. Anxiety sensitivity, however, also includes the fear of cognitive symptoms characteristic of the other disorders. Anxiety sensitivity has in fact been found to apply to depression (Otto, Pollack, Fava, Uccello, & Rosebaum, 1995), GAD, and OCD (Taylor, Koch, & McNally, 1992). Thus, while anxiety sensitivity does show evidence of specificity with regard to panic disorder (see Taylor, 1995 for a discussion), it has been implicated in other anxiety disorders and depression as well. The role of anxiety sensitivity or the fear of fear, however, has not been closely examined in these disorders.

This fear of anxiety and anxiety-related symptoms may also be part of a more general fear of losing control over emotional experiencing. For instance, Williams, Chambless, and Ahrens (1997) have proposed that the fear of fear concept is part of a broader fear of emotions in general, including the fear of losing control over depression,

anger, and positive affect. Williams and colleagues found that the fear of emotions predicted unique variance in panic-related symptoms, independent of the fear of anxiety. With regard to GAD, Roemer, Salters, Raffa, and Orsillo (2005) found that the fear of anxiety and the fear of depression were present in higher levels among individuals meeting GAD diagnostic criteria compared to nonclinical participants. Only the fear of anxiety, however, predicted unique variance in worry and GAD symptom severity when accounting for the effects of worry and the fear of other emotions (Roemer et al., 2005).

Research has begun to examine possible causes of this tendency to fear internal emotional experiences. A key concept in this area of research is emotion dysregulation. With regard to GAD, Turk and colleagues (2005) have found that a tendency to experience emotions more strongly is specific to GAD as compared to other forms of anxiety such as social anxiety disorder. In a recent study, Turk, Heimberg, Luterek, Mennin, and Fresco (2005) investigated possible emotion regulation deficits that they speculated may be involved in GAD. They found that both GAD patients and social anxiety disorder patients showed higher levels of the fear of anxiety and the fear of depression than did nonanxious participants. Individuals with GAD, however, were more likely to experience more intense emotions, to pay more attention to these emotions, and to show a greater fear of depression compared to the group of socially anxious participants. Turk and colleagues propose that this more intense experience of emotion may account for the propensity of GAD patients to use repetitive verbal thought, or worry, as a means of suppressing autonomic arousal.

The idea that worry decreases autonomic arousal and in so doing prevents emotional processing from occurring is not new. As Borkovec, Ray, and Stöber (1998)



have observed, worrying has the effect of suppressing autonomic arousal in response to a stressor and decreasing anxiety in the short-term. According to Borkovec and colleagues' theory, this suppression of arousal is negatively reinforcing and therefore increases the use of worry as an emotion-control strategy. In the long-term, however, worry inhibits emotional processing of the feared situation. Research into the effect of worry as compared to mental imagery on immediate and delayed responses to a stressor has supported this avoidance function. In particular, the use of worry following the presentation of a threatening stimulus was found to decrease anxiety immediately after presentation of the stimulus, but to lead to an increase in intrusive thoughts regarding the threat a short time after exposure to the stimulus was ended (Butler, Wells, & Dewick, 1995; Wells & Papageorgiou, 1995). Participants instructed to visually imagine the threatening stimulus, however, did not show this increase in intrusive thoughts. It appears then that individuals with GAD may be prone to use worry to control their greater emotional responses to stressors, which impedes emotional processing of their fears and leads to a long-term increase in anxiety and intrusive thoughts. It remains unclear how much the fear of this initial heightened emotional response plays a role in the development of GAD. It remains unclear also whether negative beliefs about the emotion-control strategy, namely worry, develop as a result of this failure in emotional processing.

Following from the idea that worry serves an avoidant function, one might further speculate that the emotional and cognitive processes that lead to worry may also contribute to the use of cognitive avoidance strategies. For instance, cognitive avoidance strategies may be employed to cope with the fear of the two main types of GAD

symptoms, namely worry and the somatic symptoms of anxiety (DSM-IV; American Psychiatric Association [APA], 2000). A reasonable hypothesis, therefore, is that negative beliefs about worry and the fear of anxiety may show a significant relationship to the use of cognitive avoidance strategies in worry.

Support for the hypothesis that negative appraisals of emotional or cognitive symptoms may contribute to cognitive avoidance comes from previous research finding similar patterns of association in other anxiety disorders and in depression. In their research on OCD, Purdon and Clark (1994) found that the appraisal of an intrusive thought as uncontrollable was moderately correlated with avoidance of situations that trigger the intrusive thought. Tolin and colleagues (2003) found that beliefs about the importance of thoughts (i.e. the significance attached to the presence of the intrusive thought) predicted neutralizing in OCD. Similarly, Rassin, Merckelbach, Muris, and Spaan (1999) found that thought-action fusion, the belief that intrusive thoughts have an impact on external events or are as morally reprehensible as the behaviour itself, led to more frequent intrusive thoughts, increased discomfort, and greater resistance to the intrusive thoughts.

Similarly, with respect to depression, Cox, Enns, and Taylor (2001) found that a lower-order factor of anxiety sensitivity, the fear of cognitive dyscontrol, was positively correlated with rumination among individuals with depressed mood. Further, rumination about depressive symptoms (which these researchers found was factorially distinct from ruminative self-focus) was found to mediate the relationship between the fear of cognitive dyscontrol and depression (Cox et al., 2001). Wells (2004) has suggested that rumination may be an avoidant coping strategy which inhibits emotional processing by

focusing attention on the symptoms of depression rather than on the activation of self-knowledge structures. Thus, the results of Cox and colleagues' (2001) study support the idea that negative interpretations of internal processes may lead to the use of avoidance strategies. Further, these results suggest that cognitive avoidance strategies may mediate the relationship between these negative appraisals and the symptoms of the disorder. Similarly, then, cognitive avoidance may mediate the relationship between negative beliefs about worry and worry or may mediate the relationship between the fear of anxiety and worry.

With regard to GAD, the relationship between negative beliefs about worry and cognitive avoidance strategies has not been investigated. Wells' (1995) metacognitive theory of GAD does, however, propose that negative beliefs about worry may be related to the use of other cognitive avoidance strategies, which are employed in a failed attempt to control worry and meta-worry. Other researchers (Purdon, 1999; Rassin et al., 2000) have since emphasized the need to investigate these relationships in more depth.

The relationship between the fear of anxiety in GAD and various avoidance strategies has recently received some preliminary attention. Roemer and colleagues (2005) found that the fear of fear was significantly correlated with experiential avoidance. Wegner and Zanakos (1994) also found a significant correlation between anxiety sensitivity and thought suppression. The relationship between the fear of anxiety and cognitive avoidance strategies other than thought suppression, however, has not been directly examined.

Research into the effects of cognitive avoidance on symptom development in psychological disorders has received a considerable amount of attention. The literature

on the effects of thought suppression in particular is extensive. This area of investigation stemmed from Wegner, Schneider, Carter, and White's (1987) examination of the paradoxical effects of thought suppression. Wegner and colleagues found that deliberate suppression of a neutral thought later produced a rebound effect, an increase in the frequency of intrusive thoughts about the neutral target. Wegner and Zanakos (1994) later developed a measure of thought suppression, the White Bear Suppression Inventory, which has been widely used.

In her review of research findings on the effects of thought suppression in emotional disorders, Purdon (1999) found that the paradoxical effects of suppression were inconsistent in the research on depression, worry, and OCD. However, she concluded that the research supported the idea that suppression of distressing thoughts in post-traumatic stress disorder subsequently increased intrusive thoughts. With regard to depression and GAD, Purdon (1999) noted that research into the suppression of neutral thoughts may not capture the effects of suppressing the more personally-relevant and emotionally-valent material that would be avoided in the context of an emotional disorder. Becker, Rinck, Roth, and Margraf (1998) have examined the effects of suppressing personally-relevant worries among GAD patients. They found that individuals with GAD showed a paradoxical increase in intrusive thoughts after suppressing thoughts about their main worries. The GAD participants did not show this effect with neutral thoughts. For the nonanxious participants, the counterproductive effect of thought suppression was observed for neutral thoughts, but not for worries. Thus, the paradoxical effects of thought suppression seem to apply specifically to worries in GAD. Similarly, in their examination of the effects of thought suppression on

emotional material, Roemer and Borkovec (1994) found that suppression produced a subsequent increase in the frequency of statements directly related to the suppressed emotional material. Conversely, initial expression of the emotional material led to a decrease in the frequency of directly-related statements. Further, suppression was found to increase anxiety about the target thoughts, regardless of the initial neutral or anxiety-provoking nature of the material, whereas expression reduced subsequent anxiety (Roemer and Borkovec, 1994).

Similar conclusions were reached by Rassin, Merckelbach, and Muris (2000) who noted that while the paradoxical effects of thought suppression as a control strategy have generally been established, other, more relevant processes, such as intolerance of uncertainty in worry or thought-action fusion in OCD, appear to account for emotional disorder symptoms to a greater extent. Rassin and colleagues suggested that, rather than being a primary cause, thought suppression likely plays a secondary role in the development of emotional disorders. In light of these findings, the need to investigate the relationship between cognitive avoidance strategies and other processes involved in emotional disorders is especially evident.

An inherent difficulty for research in this area is the lack of measurement tools assessing a broader range of cognitive avoidance strategies, and the inconsistent taxonomies applied to the various measures that do exist (Rassin et al., 2000). Available measures have examined either specific instances of cognitive avoidance, such as the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) which measures thought suppression, or a subset of strategies, such as in the Thought Control Questionnaire (TCQ; Wells & Davies, 1994) which measures Distraction, Punishment,

Worry, Social-Control, and Re-Appraisal. Alternatively, some measures assess the use of information-avoidance as a dispositional coping strategy, such as in the case of the Blunting subscale from the Miller Behavioral Style Scales (MBSS; Miller, 1987) and the Cognitive Avoidance subscale from the Mainz Coping Inventory (MCI-R; Krohne et al., 2000). A recently-developed French questionnaire, the Questionnaire d'évitement cognitif (QEC; Gosselin et al., 2002) or Cognitive Avoidance Questionnaire (CAQ), measures five specific cognitive avoidance strategies, namely Thought substitution, the Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression.

As noted by Rassin and colleagues (2000), however, these measures of cognitive avoidance have not been adequately compared. Therefore, it is unclear to what extent they assess similar aspects of the same construct and to what extent they are distinct. For instance, the TCQ (Wells, & Davies, 1994) Worry subscale measures "efforts to think about more minor problems, dwell on smaller worries, or to replace the thought with more trivial bad thoughts" (Coles & Heimberg, 2005). This TCQ subscale may correspond with Thought Substitution strategies as measured by the CAQ (which includes thinking of other people's issues instead of one's own, thinking of trivial matters to avoid more threatening issues, and thinking of the past instead of the future). This hypothesis has not yet been tested. Similarly, the term distraction has been applied to several measures of specific cognitive avoidance strategies, such as the TCQ and the CAQ subscales, and has also been grouped with other strategies in general avoidant coping measures such as the MBSS and MCI-R. It is not yet clear, however, whether these similarly-labeled scales are assessing the same construct, or whether distraction is a

homogenous strategy. Further research is needed to discriminate between these constructs and to examine the overlapping features of these measures (Rassin et al., 2000).

In the present study, the French Questionnaire d'évitement cognitive (QEC) was translated into the English Cognitive Avoidance Questionnaire (CAQ), which was then examined in terms of its psychometric properties and convergent and divergent validity. Specifically, the internal consistency and test-retest reliability (stability) of the CAQ was investigated and a confirmatory factor analysis of the five-subscale structure was examined. Finally, the CAQ was compared with the WBSI thought suppression measure, the MBSS Blunting and Monitoring scales, and the MCI-R Cognitive Avoidance and Vigilance scales.

In a second study, the relationship between cognitive avoidance and other worry-related processes was examined. Specifically, negative beliefs about worry and the fear of anxiety were hypothesized to contribute to the use of cognitive avoidance strategies. Four measures were employed to assess these constructs. First, negative beliefs about worry were assessed using the negative beliefs subscales from the Meta-Cognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997) and the Negative Consequences subscale from the Consequences of Worry Scale (COWS; Davey, Tallis & Capuzzo, 1996). The MCQ includes two negative beliefs subscales that were included in the present study, namely Negative Beliefs About the Uncontrollability of Thoughts and Corresponding Danger subscale (MCQ-UD) and Negative Beliefs About Thoughts in General, including Themes of Superstition, Punishment, and Responsibility (MCQ-SPR). The COWS Negative Consequences scale, on the other hand, measures three additional

negative beliefs about worry, namely the beliefs that Worrying Disrupts Effective Performance, Worrying Exaggerates the Problem, and Worrying Causes Emotional Discomfort. With regard to the fear of anxiety, the Anxiety Sensitivity Index Revised (ASI-R; Taylor & Cox, 1998) and the Fear of Anxiety subscale from the Affective Control Scale (ACS; Williams et al., 1997) were employed. The ASI-R primarily assesses threatening interpretations of the physiological symptoms of anxiety (for example, the fear of cardiac symptoms, the fear of respiratory symptoms, the fear of gastrointestinal symptoms), but also contains subscales assessing the fear of cognitive dyscontrol, the fear of dissociative and neurological symptoms, and the fear of public embarrassment as a result of observable anxiety reactions. The ACS Fear of Anxiety subscale, on the other hand, is a measure of the fear of losing control over anxious emotions. These four measures of negative beliefs about worry and anxiety were entered into hierarchical multiple regressions predicting cognitive avoidance strategies as measured by the CAQ. Study 2 sought to determine if either negative beliefs about worry, the fear of anxiety, or both predicted cognitive avoidance in worry. In particular, this study sought to compare the relative contributions of negative beliefs about worry or negative beliefs about anxiety to the prediction of cognitive avoidance.

A final aim of the current studies was to compare the relationship of these worry-related processes with two distinct types of worry. According to the Diagnostic and Statistical Manual of Mental Disorders fourth edition (DSM-IV-TR; American Psychiatric Association [APA], 2000), generalized anxiety disorder is characterized by excessive levels of generalized and uncontrollable worry. Currently, the commonly-used measure of excessive generalized worry is the Penn State Worry Questionnaire (PSWQ; Meyer,



Miller, Metzger, & Borkovec, 1990), a 16-item measure of trait worry. More recently, however, Belzer and D’Zurilla developed a measure of catastrophic worry, or worry that specifically focuses on extreme outcome expectancies. The Catastrophic Worry Questionnaire (CWQ; Belzer and D’Zurilla, 1999) is a 10-item measure of this tendency to worry about negative outcomes of events and to have these worries escalate into more extreme outcome expectancies. Research has found that the PSWQ and CWQ are highly correlated, as would be expected, but that they differ in the strength of their relationship with worry-related processes and in their discriminant validity. In particular, Buhr, Bakerman, and Dugas (2004) found that the PSWQ showed greater effect sizes than did the CWQ when distinguishing between participants meeting full GAD diagnostic criteria, a group presenting with GAD somatic symptoms only, and a nonanxious group. Buhr and colleagues also noted, however, that catastrophic worry was more highly related to intolerance of uncertainty as measured by the Intolerance of Uncertainty Scale (IUS; Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). The current study sought to examine whether this evidence of a stronger relationship between catastrophic worry and GAD-related processes was also evident with negative beliefs about worry, the fear of anxiety, and cognitive avoidance.

COGNITIVE AVOIDANCE QUESTIONNAIRE

The Cognitive Avoidance Questionnaire: Validation of the English Translation

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## Abstract

This study investigated the psychometric properties of the Cognitive Avoidance Questionnaire (CAQ; Gosselin et al., 2002) English translation. The CAQ assesses five worry-related cognitive avoidance strategies, namely Thought Substitution, the Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression. The CAQ scale and subscales showed good to excellent internal consistency and good stability. A confirmatory factor analysis found support for the proposed subscales, though the overall goodness-of-fit was lower than expected. Preliminary evidence of convergent and divergent validity was found with measures of worry, thought suppression, and dispositional coping styles. In particular, the CAQ was negatively correlated with vigilance in controllable situations and positively correlated with both information-avoidance in controllable situations and information-seeking in uncontrollable situations.

### The Cognitive Avoidance Questionnaire: Validation of the English Translation

Recent developments in the cognitive-behavioural treatment of anxiety and depression have emphasized the role of cognitive avoidance in psychopathology. In particular, with the development of the “third wave” of therapies (see Hayes, 2004) such as mindfulness and acceptance and commitment therapy, research into the etiological and maintaining factors has focused increasingly on the role of behavioural, cognitive, and emotional avoidance in psychopathology. In particular, research in the area of anxiety has suggested that cognitive avoidance may play a role either as a cause or as a maintaining factor in the development of generalized anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (see Rassin, Merckelbach, & Muris, 2000, for a review). In these models, cognitive avoidance strategies such as thought suppression and distraction are hypothesized to inhibit emotional processing of feared stimuli (Foa & Kozak, 1986). For instance, in their examination of the effects of thought suppression on emotional material, Roemer and Borkovec (1994) found that the suppression of emotional material produced a subsequent increase in the frequency of statements directly related to the target thought, whereas initial expression led to a decrease in the number of these thoughts. Further, suppression led to a subsequent increase in anxiety about the target situation, regardless of the initial neutral or anxiety-provoking nature of the situation, whereas expression was found to reduce subsequent anxiety.

Various forms of cognitive avoidance have been implicated in the development of anxiety disorders (for example, see Purdon, 1999), and in particular generalized anxiety disorder (GAD; see Borkovec, Ray, & Stöber, 1998). Borkovec and Inz (1990) have

suggested that the verbal content of worry itself constitutes a cognitive avoidance strategy, as it interferes with the emotional processing that occurs with the use of mental imagery (see Butler, Wells, & Dewick, 1995; Wells & Papageorgiou, 1995). With regards to specific cognitive avoidance strategies, the effects of thought suppression have been investigated in some depth (see Purdon, 1998; Rassin, Merckelbach, & Muris, 2000). Deliberate suppression of neutral thoughts, however, has not consistently been shown to produce a subsequent increase in intrusive thoughts (or rebound effect) in high worriers (Purdon, 1998; Rassin et al., 2000). Conversely, the counterproductive effects of thought suppression have been observed with more personally-relevant material. Notably, Becker Rinck, Roth, and Margraf (1998) found that individuals with GAD had greater difficulty suppressing thoughts about their main worries relative to thoughts about a neutral target, whereas nonanxious participants showed the opposite effect. As such, while the current empirical evidence suggests that cognitive avoidance is not the underlying or primary cause of these disorders, cognitive avoidance nonetheless appears to play a less pronounced but nonetheless significant role in the maintenance of emotional disorders (Rassin et al., 2000).

Rassin and colleagues (2000), however, suggest that thought suppression does not constitute the whole of the cognitive avoidance strategies that may be involved in the maintenance of psychopathology, and anxiety in particular. Additional cognitive avoidance strategies have been examined, including distraction (Foa & Kozak, 1986), punishment, social control, and re-appraisal (Wells & Davies, 1994), and blunting (Miller, 1987). As previously mentioned, Borkovec and Inz (1990) have proposed that the high verbal content of worry itself constitutes a strategy for avoiding more arousing

mental images of threatening situations. Similarly, Borkovec and colleagues (1998) noted that worry about minor issues may be used to avoid more distressing topics. The Worry subscale from the Thought Control Questionnaire (TCQ) developed by Wells and Davies (1994) was designed to assess the use of worry as a cognitive avoidance strategy, and this strategy was found to relate to worry and to social- and meta-worry in particular (Wells & Davies, 1994). Similarly, using the TCQ, Coles and Heimberg (2005) found that punishment (self-directed anger) and the use of worry as an avoidance strategy were related to high levels of worry as well as to depression and low life satisfaction, whereas social control and distraction were negatively correlated with worry, and re-appraisal was unrelated. An additional means of assessing the use of verbal worry as a cognitive avoidance strategy may be to examine the extent to which individuals actively transform their mental images into verbal thought.

The role of cognitive avoidance in GAD has also been investigated by Dugas, Gagnon, Ladouceur, and Freeston (1998). Their cognitive-behavioural model of GAD suggests that cognitive avoidance is a contributing process in worry. Specifically, studies examining this model have found that cognitive avoidance, while not specific to GAD as compared to other anxiety disorders, is nonetheless specifically related to worry (Dugas, Marchand, & Ladouceur, 2005). Individuals with GAD do show higher levels of cognitive avoidance than do nonclinical participants (Ladouceur et al., 1999). Further, when directly targeted in the treatment of GAD, cognitive avoidance was found to decrease significantly from pre- to post-treatment (Dugas et al., 2004). Thus, cognitive avoidance would appear to be implicated in the phenomenon of excessive and uncontrollable worry.

While the role of cognitive avoidance in anxiety has received increased attention in the psychopathology literature, available measures do not assess the full range of cognitive avoidance strategies and frequently assess only single dimensions of the construct. A measure assessing a broader array of cognitive avoidance strategies does, however, exist in French. The purpose of this study was therefore to validate the English translation of the Questionnaire d'évitement cognitif (QEC; Gosselin et al., 2002; Langlois et al., 1996) or Cognitive Avoidance Questionnaire (CAQ). The CAQ measures five cognitive avoidance strategies, namely the substitution of distressing thoughts, the transformation of mental images into verbal thoughts, distraction, avoidance of threatening stimuli, and thought suppression. As such, the CAQ captures many of the previously discussed cognitive avoidance strategies, as well as some additional strategies such as thought substitution, the transformation of images into thoughts, and the avoidance of situations or stimuli that trigger intrusive thoughts, in a single measure.

The original French QEC was developed by clinical researchers in the area of intrusive thoughts and cognitive avoidance who, based on clinical experience and theoretical considerations, generated a set of face-valid items designed to measure cognitive avoidance strategies (Langlois et al., 1996). An initial 41-item version was evaluated and was demonstrated to have good internal consistency, convergent validity, and criterion validity (Langlois et al., 1996). This version was later shortened by retaining the 22 items showing the highest factor correlations and adding 3 items to complete the five subscales, such that each subscale was composed of 5 items, for a 25-item total scale (Gosselin et al., 2002). Preliminary psychometric analyses of this original French questionnaire have demonstrated excellent internal consistency of the

overall scale, good to excellent internal consistency of the subscales, and good test-retest reliability (Gosselin et al., 2002). Exploratory factor analyses of the QEC conducted in both adult and adolescent populations have by-and-large supported the five-factor structure of the QEC, though a few items were found to load on more than one factor (Gosselin et al., 2002). Generally, however, the original French version has shown evidence of good psychometric properties, criterion-related validity, convergent validity, discriminant validity (Gosselin et al., 2002), and treatment sensitivity (Dugas et al., 2004).

This study sought to translate the QEC into English and replicate these psychometric findings with the translated version. Specifically, the current investigation sought to examine the factor structure, the internal consistency, and test-retest reliability of the English translation. Further, this study sought to provide preliminary evidence of convergent and divergent validity by comparing the CAQ with other measures of information-avoidance and information-seeking. First, this study examined the relationship between the CAQ and a frequently-used measure of thought suppression, the White Bear Suppression Inventory (WBSI). Secondly, the CAQ was compared to two measures of dispositional coping styles, the revised Mainz Coping Inventory (MCI-R) and the Miller Behavioral Style Scales (MBSS). The MCI-R assesses the use of both vigilant and information-avoidant coping strategies across a variety of controllable and uncontrollable threatening situations, and the MBSS assess monitoring and blunting responses to uncontrollable threatening situations. Both measures have been widely used in the coping literature (see Krohne, 1996 for a review of information-seeking and information-avoidant coping measures).



We therefore hypothesized that the CAQ would show a high level of internal consistency for both its total and subscale scores, would evidence stability over time, and would demonstrate, in a confirmatory factor analysis, acceptable goodness-of-fit for its clinically- and theoretically-derived five-subscale structure. With regard to convergent validity, we hypothesized that the CAQ, and especially the Thought Suppression subscale, would be highly positively correlated with the White Bear Suppression Inventory. Further, we hypothesized that the CAQ would show positive correlations with the Cognitive Avoidance and Blunting subscales of the MCI-R and MBSS, respectively. Finally, we expected the CAQ to show divergent validity when compared with the Vigilance or Information-Seeking subscale of the MCI-R and the Monitoring subscale of the MBSS. As the MCI-R information-seeking and information-avoidant styles of coping have been shown to be independent in previous research (Krohne et al., 2000), we hypothesized that the MCI-R Vigilance would show either no relation to the CAQ or would show a small to moderate negative correlation with the CAQ. A similar pattern of results was expected for the MBSS Monitoring subscale.

## Method

### *Translation of the QEC*

Based on the methods proposed by Vallerand (1989), the QEC was translated into English by two independent bilingual translators. Both versions were subsequently back-translated into French by an independent third translator and then compared to the initial French version. Items that were translated identically by the initial translators and that, further, were found to closely approximate the original French version when back-translated were immediately included in the English version. Where discrepancies

between the two translated versions arose, items were selected from one of the two versions based on how closely the back-translation matched the initial questionnaire. When neither version produced an accurate or satisfactory back-translation for a particular item, the translated versions were either combined, if possible, or the item was re-translated by the third translator. Finally, the proposed translation was examined by a committee made up of the bilingual translators, the study researchers, additional research colleagues, and one of the original authors of the French scale to insure accurate translation and interpretability of the translated items and instructions.

#### *Participants and Procedure*

Four hundred and fifty-six ( $N=456$ ) students (65.3% female) from Concordia University in Montreal, Canada, were recruited from undergraduate, non-psychology courses to participate in the study on a volunteer basis. A letter was sent to professors within the university requesting permission to recruit participants and conduct a 20-minute in-class testing session. The primary investigator or a research assistant attended the classes of those professors expressing interest, briefly described the study, and invited students to participate. Consent forms, demographic information forms, and questionnaire packages were distributed to the entire class. All volunteering participants completed the English translation of the Cognitive Avoidance Questionnaire; 218 participants also completed a questionnaire package consisting of the following measures: the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger & Borkovec, 1990), the Catastrophic Worrying Questionnaire (CWQ; Belzer & D'Zurilla, 1999), the White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994), the Mainz Coping Inventory Revised (MCI-R; Krohne et al., 2000), and the Monitoring and

Blunting subscales of the Miller Behavioral Style Scale (MBSS; Miller, 1987). Students choosing not to participate were instructed to leave the questionnaire packages blank and submit them along with the other packages at the end of the class so as to ensure confidentiality. All students were then given a debriefing form explaining the nature and purpose of the study in more detail and providing references for further reading.

For a subset of classes where time permitted and permission was granted by the professors in question, the primary investigator or research assistant attended the class 4 to 6 weeks later and invited students to complete the CAQ a second time in order to provide retest data. Again, consent forms and the questionnaire were distributed to the class, and students choosing not to participate were instructed to leave the forms blank and return them along with the other students at the end of the testing period. A total of 130 participants provided retest data.

### *Measures*

*Cognitive Avoidance Questionnaire (CAQ; Gosselin et al., 2002)*. The CAQ is a 25-item self-report measure of the tendency to employ cognitive avoidance strategies when dealing with threatening intrusive thoughts. The CAQ is comprised of five subscales measuring five types of cognitive avoidance strategies, namely Thought Substitution, Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression. Statements describing the use of these strategies are rated on a five-point Likert scale, ranging from 1 = not at all typical to 5 = completely typical. The original French version of the CAQ, or Questionnaire d'évitement cognitif (QEC), showed evidence of high internal consistency ( $\alpha = .95$ ) and test-retest reliability ( $r = .81$  over a 4-week interval) (Gosselin et al., 2002). Similarly,

the five subscales showed good to excellent internal consistency (ranging from  $\alpha = .71$  for the Thought Substitution subscale to  $\alpha = .90$  for the Thought Suppression and Avoidance of Threatening Stimuli subscales, with the Distraction ( $\alpha = .89$ ) and Transformation of Images into Thoughts ( $\alpha = .84$ ) subscales also showing very good internal consistency). An exploratory factor analysis confirmed the five-subscale structure in both adult and adolescent populations, though a few items were found to load on more than one factor (Gosselin et al., 2002).

In terms of convergent validity, the QEC was shown to correlate highly with worry as measured by the Penn State Worry Questionnaire (PSWQ) and with other worry-related process measures, namely the Intolerance of Uncertainty Scale (IUS), the Why Worry questionnaire (WW), and the Negative Problem Orientation Questionnaire (NPOQ) (Gosselin et al., 2002). Similarly, high worriers as categorized by the PSWQ were found to use more cognitive avoidance strategies measured by the QEC than moderate worriers (Gosselin et al., 2002). This finding replicated earlier analyses using the initial 41-item version, which found that individuals scoring in the moderate and high range on the QEC showed higher levels of worry as measured by the PSWQ, the uncontrollability of worry item from the Generalized Anxiety Disorder Questionnaire-IV (GAD-Q-IV), and the Somatic Symptom subscale from the GAD-Q-IV, than did individuals scoring in the low range on the QEC (Langlois et al., 1996). Further, participants meeting full GAD diagnostic criteria (i.e. both the cognitive and somatic symptoms) as measured by the GAD-Q-IV were more likely to fall in the high cognitive avoidance group (Langlois et al., 1996).

*Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger & Borkovec, 1990).* The PSWQ is a 16-item measure of the frequency and intensity of excessive worry. The PSWQ has shown evidence of excellent internal consistency ( $\alpha = .86$  to  $.95$ ) and stability over time ( $r = .92$  for test-retest over an 8- to 10-week interval,  $r = .74$  to  $.93$  over 4 weeks; Meyer et al., 1990; Molina & Borkovec, 1994). The PSWQ is generally considered to be unifactorial, though recent studies have found evidence of a second method factor composed of the five reverse-scored items (Brown, 2003; Hazlett-Stevens, Ullman, & Craske, 2004). The PSWQ has also shown good convergent, divergent, and discriminant validity in both clinical and nonclinical populations (Brown, Antony, & Barlow, 1992; Meyer et al., 1990; Molina & Borkovec, 1994). Specifically, the PSWQ has shown significant positive correlations with measures of anxious tension and emotional control, has distinguished individuals with GAD from other anxiety disorders groups, and has demonstrated independence from anxiety and depression measures (Brown et al., 1992).

*Catastrophic Worrying Questionnaire (CWQ; Belzer & D'Zurilla, 1999).* The CWQ consists of 10 items and measures catastrophic worry as opposed to excessive generalized worry. Preliminary investigations of the psychometric properties of the CWQ suggest that the measure is unifactorial, has good internal consistency ( $\alpha = .90$ ), and good test-retest reliability ( $r = .76$  for a 4-week interval; Belzer & D'Zurilla, 1999). The CWQ has also been shown to correlate with the PSWQ, with measures of depression and anxiety, and with worry-related process measures (Belzer & D'Zurilla, 1999). Further research suggests that the CWQ may be more highly correlated with worry-related processes (in particular, with intolerance of uncertainty) than the PSWQ, but that

the PSWQ remains more sensitive to between-group differences when comparing individuals meeting full DSM-IV (American Psychiatric Association [APA], 2000) diagnostic criteria for GAD, individuals with only the somatic symptoms of GAD, and nonanxious participants (Buhr, Bakerman, & Dugas, 2004).

*White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994).* The WBSI is a 15-item measure of thought suppression and mental control of intrusive thoughts. The WBSI has demonstrated very good internal consistency ( $\alpha = .87$ ), and good test-retest reliability over 1-week ( $r = .92$ ) and 3-week to 3-month ( $r = .69$ ) periods. The WBSI was developed to be factorially distinct from negative affectivity, emotion inhibition, mood control, and behavioural control (Wegner & Zanakos, 1994). Significant correlations with measures of obsessive-compulsive symptoms, depression, and anxiety have attested to the convergent validity of the WBSI (Wegner & Zanakos, 1994). The WBSI was also found to correlate significantly with a behavioural thought suppression task (Muris, Merckelbach, & Horselenberg, 1996).

While initial analyses found the WBSI to have a unifactorial structure (Muris, Merckelbach, & Horselenberg, 1996; Wegner & Zanakos, 1994), subsequent factor analyses have found two- and three-factor structures to the WBSI. Blumberg (2000) found evidence of a three-factor structure, and labeled the three factors as “unwanted intrusive thoughts,” “thought suppression,” and “self-distraction.” Hoping and Jong-Meyer (2003) conversely found evidence of two factors, namely “unwanted intrusive thoughts” and “thought suppression.” Muris, Merckelbach, and Horselenberg (1996) also suggested that five WBSI items in particular refer to intrusiveness of thoughts rather than to the use of thought suppression as a control strategy. Further, Hoping and Jong-Meyer

(2003) found that the relationship between the WBSI and depression, anxiety, and obsessive-compulsive symptoms was due to the “unwanted intrusive thoughts” factor, which was negatively correlated with other measures of avoidance coping. Based on these findings, and following the approach employed by Ladouceur et al. (1999) and Dugas, Gagnon, Ladouceur, and Freeston (1998), only the Thought Suppression factor, made up of items 1, 8, 10, 11, 12, 13, and 15, was used. Factor items measuring a lack of control over thoughts were excluded.

*Mainz Coping Inventory Revised (MCI-R; Krohne et al., 2000).* The MCI-R consists of 80 items measuring vigilance (information-seeking) and cognitive avoidance (or information-avoiding) reactions to eight physical- and ego-threat situations. The MCI-R therefore allows for four subscales to be computed: vigilance in ego-threat situations, vigilance in physical-threat situations, cognitive avoidance in ego-threat situations, and cognitive avoidance in physical-threat situations. Alternatively, vigilance and cognitive avoidance scores can be compiled across ego- and physical-threat situations. These overall measures of dispositional coping style were employed in the current study.

The original version of the MCI contained 18 coping responses for each of the eight scenarios, with situational variants of the same coping responses being presented in the same order for each scenario (Krohne, 1993). In the MCI-R, only 10 of the 18 coping responses were retained and the order in which these responses were presented was varied. The eight threat scenarios remained the same. The four ego-threat scenarios consist of giving a public speech, preparing for an examination, waiting for a job interview to begin, and having a talk with the boss after having made a mistake on the

job. The four physical-threat scenarios consist of the wait for a dental procedure to begin, a late-night encounter with a group of people, a car trip with an inexperienced driver in icy conditions, and a turbulent flight. In terms of the vigilance and cognitive avoidance coping statements assessed for each scenario, Krohne (1989) describes the Vigilance subscale as measuring strategies such as “recalling negative events, self-pity, information search, comparison with others, planning for the future, escape tendency, control via information, anticipation of negative events, and situation control.” The Cognitive Avoidance coping strategies include “minimization, self-enhancement, re-interpretation, attentional diversion, playing down by executing incompatible reactions, denial, emphasizing one's own efficacy, accentuating positive aspects, and trust” (Krohne, 1989). A true-false rating scale is used for each statement, and “true” responses are summed across the various subscales.

In several studies examining the measure's validity and psychometric properties, the MCI has shown evidence of good test-retest reliability ( $r = .76$  for the MCI Vigilance scale,  $r = .84$  for MCI Cognitive Avoidance over a 2-week interval) and very good internal consistency ( $\alpha = .84$  for Vigilance,  $\alpha = .84$  for Cognitive Avoidance; Krohne et al., 2000). In the present study, the MCI-R showed very good internal consistencies for both the Vigilance ( $\alpha = .86$ ) and Cognitive Avoidance ( $\alpha = .83$ ) subscales. Factor analyses of the MCI have supported the two-scale structure (Krohne et al., 2000). The MCI Vigilance scale has been found to correlate positively with other measures of planning and active coping, the tendency to seek instrumental and emotional support, negative affect, and a tendency to focus on emotional reactions (Krohne et al., 2000). The MCI Cognitive Avoidance scale was negatively correlated with a focus on emotional



reactions, emotional expression, and negative affect, but correlated positively with positive affect (Krohne et al., 2000). Individuals scoring high on the MCI Vigilance scale and low on the MCI Cognitive Avoidance scale were further found to have an increased tendency to make threatening interpretations of ambiguous stimuli and to attend to and later recognize these ambiguous stimuli and their threatening interpretations more frequently (Hock, Krohne, & Kaiser, 1996).

*Miller Behavioral Style Scale (MBSS; Miller, 1987).* The Monitoring (information-seeking) and Blunting (information-avoiding) subscales of the MBSS are composed of 32 items in total which assess reactions to four threatening scenarios. The four scenarios consist of waiting to undergo a dental procedure despite being afraid of the dentist, being held hostage by a group of armed terrorists, waiting for the announcement of company layoffs following an annual work performance review, and experiencing an abrupt change in altitude during a flight. Van Zuuren and Wolfs (1991) identified four categories of Monitoring responses on the MBSS, namely looking for information within the situation, seeking information from other people, seeking information from past experiences, and looking for written information. The Blunting scale showed more varied coping responses, including distraction (both behavioural and cognitive), reinterpretation of the situation, substance use, and clearing the mind of all thoughts (van Zuuren, 1994; van Zuuren & Wolfs, 1991). Examples of coping responses include “I would push all thoughts of being laid off out of my mind” or “I would try to think about pleasant memories” (Blunting) and “I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were” or “I would ask the dentist exactly what he/she was going to do” (Monitoring).

Respondents are asked to check off all coping responses that apply to them; an alternative version of the scale asks respondents to rate how applicable the coping response is to them on a 5-point Likert scale (van Zuuren & Wolfs, 1991).

The MBSS has demonstrated good test-retest reliability over a 4-month interval with  $r = .72$  for the Monitoring scale and  $r = .75$  for the Blunting scale (Miller, 1987). The internal consistency of the dichotomous version of the scales has not been well documented in the literature. In the present study, which employed the dichotomous ratings, the Monitoring scale showed good internal consistency ( $\alpha = .72$ ), and the Blunting scale showed a low but adequate internal consistency ( $\alpha = .55$ ). A factor analysis of the MBSS using the 5-point rating scale (Dutch translation) found a two-factor solution, with monitoring items loading on the first factor and blunting items loading on the second factor (Muris & Schouten, 1994). The Monitoring and Blunting scales have been shown to correlate with actual coping behaviour in threatening experimental situations (for example, Miller, 1987), particularly when both behaviour and cognition are taken into account (van Zuuren & Muris, 1993).

## Results

### *Preliminary Analyses*

*Data screening and outlier analysis.* All study measures were initially examined for multivariate outliers, univariate outliers, and normality of the distribution. First, to assess for multivariate outliers, all measures were entered into a multiple regression with an arbitrary numerical subject code as the dependent variable, and Mahalanobis distance was computed. Given that only a subset of cases was used for computing the correlations between study measures, separate regression analyses were conducted for the

correlational analyses and for the confirmatory factor analysis of the CAQ. For the correlational analyses, a chi-square cut-off of  $p < .01$  was used as the criterion for multivariate outliers. Twelve multivariate outliers were identified and removed from the correlational analyses, but were retained in the dataset if they were not multivariate outliers in the CFA (only two cases were multivariate outliers for both sets of analyses). For the CFA, the 25 items of the CAQ were entered into the multiple regression to compute Mahalanobis distance. Given the limited range of individual items, a more conservative chi square cut-off for excluding data points ( $p < .001$ ) was employed for this multivariate screening. Twenty-two multivariate outliers were identified and removed from the dataset. Again, data from participants having also completed the questionnaire package were retained in the dataset if they were not multivariate outliers in the correlational analyses.

Univariate outliers were identified by computing z-score distributions for each variable and considering as outliers all data points falling either 3.29 standard deviations ( $p < .001$ , two-tailed test) above or below the mean (Tabachnick & Fidell, 2001). No univariate outliers for the total scale scores remained after the multivariate outliers were removed from the dataset.

Finally, study measures were assessed for distribution skew. All total scale scores were within skew tolerances (i.e.,  $skew/SE > | 5 |$ , given  $N > 100$ ). The CAQ Substitution and Avoidance of Threatening Stimuli subscales, however, were both positively skewed (skew = +.78 and +.59, respectively). Given the limited range of subscale scores, however, and that clinical measures were being used with a nonclinical sample such that

some degree of positive skew was expected, we opted not to correct for the observed distribution skew of these subscales.

#### *Psychometric Properties of the CAQ*

*Internal consistency.* The internal consistency of the CAQ and its subscales, as measured by Cronbach's alpha, ranged from good to excellent. The internal consistency of the CAQ total scale was excellent ( $\alpha = .95$ ). The five subscales showed internal consistencies as follows: Thought Substitution  $\alpha = .73$ ; Transformation of Images into Thoughts  $\alpha = .87$ ; Distraction  $\alpha = .89$ ; Avoidance of Threatening Stimuli  $\alpha = .87$ ; and Thought Suppression  $\alpha = .86$ . Means and standard deviations for the CAQ items, as well as corrected item-total correlations, are presented in Table 1. Inter-correlations of the CAQ subscales are shown in Table 2.

*Stability.* Test-retest data was collected on a subsample of 130 participants. Interval times between testing ranged from 4 weeks to 6 weeks, with a mean of 5.13 weeks ( $SD = 0.70$ ). Test-retest reliability of the total scale was high ( $r = .85$ ), with the CAQ subscales also showing good test-retest coefficients (Thought Substitution  $r = .78$ ; Transformation of Images into Thoughts  $r = .70$ ; Distraction  $r = .76$ ; Avoidance of Threatening Stimuli  $r = .77$ ; and Thought Suppression  $r = .79$ ).

*Confirmatory factor analysis.* A confirmatory factor analysis of the CAQ was performed using the EQS structural equation program, version 5.7. Results were consistent with the proposed five-subscale structure. All factor loadings were found to be statistically significant, with the strength of association ranging from  $r^2 = .13$  to  $r^2 = .71$ . (See Table 3 for CFA factor loadings of the CAQ.) The multivariate Wald test, which indicates the amount by which  $\chi^2$  increases if a given model parameter (examined in a

stepwise fashion) is set to zero, did not reveal any unnecessary parameters in the model, suggesting that all estimated pathways were contributing to the overall goodness-of-fit. Given that the subscales were expected to be highly correlated, the five factors of the CAQ were allowed to covary (factor correlations are shown in Table 4). The goodness-of-fit of the overall model was adequate, though lower than recommended by conventional standards. In particular, the model  $\chi^2 = 1066.89$  for  $df = 265$ , was significant, indicating that the correlation matrix reproduced from the proposed model differed significantly from the actual or observed correlation matrix. Further, the  $\chi^2$  to  $df$  ratio = 4.03, whereas by convention,  $\chi^2$  to  $df$  ratios less than 2 indicate good model fit (Tabachnick & Fidell, 2001).

Given the numerous potential problems inherent in the  $\chi^2$  measure of the fit between the sample correlation matrix and the estimated population correlation matrix, additional indices of the model fit were assessed. For instance, in large samples, trivial discrepancies between the obtained and estimated correlation matrices can produce a significant  $\chi^2$  (Tabachnick & Fidell, 2001). Further, even with small sample sizes, the computed  $\chi^2$  may not fit the  $\chi^2$  distribution (Tabachnick & Fidell, 2001). As a further assessment of the model fit, therefore, the Bentler-Bonnet Goodness-of-Fit Index (GFI) and the Comparative Fit Index (CFI) were examined (both are computed by the EQS statistical program). Given the low ratio of sample size to model parameters (ratios of 10 participants per estimated parameter are recommended; the present sample had 436 participants for 60 estimated parameters, a ratio of 7.27:1), the non-normed Bentler-Bonnet Goodness-of-Fit Index (NNFI) was used, as it corrects for potential underestimation of the goodness-of-fit in small samples (Tabachnick & Fidell, 2001).

The Bentler-Bonnet Goodness-of-Fit Index (GFI) compares the chi square of the actual model to the chi square of the independence model (the model of entirely unrelated variables). The non-normed GFI, however, also considers the model's degrees of freedom when comparing the model fit to the independence model. By conventional standards, GFI's of .90 are considered indicative of good model fit (Tabachnick & Fidell, 2001). Analysis of the five-factor model of the CAQ revealed a (non-normed) Goodness-of-Fit Index = .86. The normed Bentler-Bonnet Goodness of fit index was indeed lower (NFI = .84). Similarly, the Comparative Fit Index (CFI), which compares the model fit to the independence model using a noncentral chi square distribution, was lower than conventional standards recommend, though still adequate. The five-factor model of the CAQ showed a CFI = .88, whereas CFI's of .95 are generally considered to be indicative of good model fit (Tabachnick & Fidell, 2001).

#### *Convergent and Divergent Validity of the CAQ*

*Comparison with measures of thought suppression and worry.* Correlations of the study measures with the CAQ are presented in Table 5. Moderate positive correlations were found between the CAQ total score and measures of worry, showing evidence of criterion-related validity of the CAQ. In particular, stronger correlations were found between the CAQ and the CWQ ( $r = .64$ ) as compared to the PSWQ ( $r = .57$ ) using Fisher's test of correlated correlation coefficients ( $Z = 1.72, p < .05$ ; see Meng, Rosenthal, & Rubin, 1992).

Consistent with our hypotheses, the CAQ total score was also found to correlate highly with the Thought Suppression factor of the WBSI, providing evidence of the convergent validity of the CAQ. Correlations between the CAQ subscales and the study

measures were also examined (see Table 6). In particular, the CAQ Thought Suppression subscale was found to correlate highly with the WBSI Thought Suppression factor ( $r = .67$ ), consistent with our hypotheses, though the Distraction subscale had a similarly high correlation ( $r = .69$ ).

*Correlation with dispositional coping styles.* Finally, the CAQ total and subscale scores were compared to the information-avoidant and information-seeking subscales of the coping measures. In particular, correlations between the CAQ and both the Cognitive Avoidance subscale of the MCI-R and the Blunting subscale of the MBSS were computed. The CAQ was then contrasted with the Vigilance subscale and the Monitoring subscale of the MCI-R and the MBSS, respectively. As expected, the CAQ was found to correlate negatively with the Vigilance subscale from the MCI-R. Contrary to our hypotheses, the CAQ was not significantly correlated with either the Cognitive Avoidance subscale from the MCI-R or the Blunting subscale from the MBSS. Further, the CAQ was found to correlate positively with the MBSS Monitoring subscale.

At the subscale level, the CAQ Transformation of Images into Thoughts, Distraction, and Thought Suppression subscales were found to correlate positively with the Monitoring subscale of the MBSS (see Table 6), again contrary to our hypotheses. In contrast to the absence of a correlation with the CAQ total scale and more in line with our expectations, the MBSS Blunting subscale was found to correlate positively with the CAQ Distraction subscale ( $r = .15, p = .027$ ). In a similar vein, the CAQ Thought Suppression subscale was positively correlated with the MCI-R Cognitive Avoidance subscale ( $r = .20, p = .004$ ), and the CAQ Avoidance of Threatening Stimuli subscale

showed a trend in the same direction ( $r = .13, p = .055$ ). All CAQ subscales were negatively correlated with the MCI-R Vigilance subscale (see Table 6).

The lack of a significant relationship between the CAQ and either the MCI-R Cognitive Avoidance subscale or the MBSS Blunting scale, and the contradictory findings with the MCI-R Vigilance (which showed a *negative* correlation with the CAQ) and the MBSS-Monitoring (which showed a *positive* correlation with the CAQ) subscales lead us to investigate what factors might be accounting for these unexpected and inconsistent findings. In their initial validation article on the MCI, Krohne and colleagues (2000) had participants rate the MCI scenarios in terms of their respective degree of aversiveness, predictability, and controllability in order to establish the validity of these scenarios for measuring *dispositional* or *habitual* coping styles as opposed to situational coping. Krohne and colleagues (2000) suggested that the scenarios should present a range of controllable versus uncontrollable stressors in order to assess both adaptive and maladaptive coping. Specifically, Krohne et al. suggest that a vigilant style of coping in controllable situations would be adaptive, while a vigilant style of coping in uncontrollable situations would instead constitute a maladaptive coping response. Conversely, cognitive avoidance would be considered adaptive when employed in uncontrollable situations, but would constitute a maladaptive coping strategy when used in controllable situations. Using these controllability ratings, Krohne and colleagues (2000) argued that the MCI provided an adequate range of both controllable and uncontrollable situations and as such could be considered a measure of *dispositional* coping styles.



Examination of the controllability ratings of the eight scenarios presented in Krohne and colleagues' (2000) validation study showed that three of the four scenarios which constitute the ego-threat subscale were rated as highly controllable ( $>3.8$  on a 5-point Likert scale), whereas the remaining five subscales were rated as less controllable ( $<3$  on a 5-point Likert scale). The three scenarios rated as controllable were the public speech, the examination preparation, and the job interview. Similarly, three scenarios from the physical-threat subscale, namely the wait for a dental procedure, the drive in icy conditions, and the turbulent flight, were rated as the least controllable ( $<2.3$  on a 5-point Likert scale). Given that the CAQ was designed to be a measure of maladaptive cognitive avoidance, cognitive avoidant responses on these three controllable scenarios were combined into a single measure that was then correlated with the CAQ. For comparison, the three scenarios rated as the least controllable were combined to produce a measure of more adaptive cognitive avoidance.

As expected, cognitive avoidance coping in controllable situations was significantly and positively correlated with the CAQ total score ( $r = .16, p = .018$ ), whereas the use of cognitive avoidance coping in uncontrollable situations was not related to the use of cognitive avoidance strategies as measured by the CAQ ( $r = .02, p = .752$ , Fisher's test of correlated correlation coefficients  $Z = 2.06, p < .01$ ). Further analysis at the subscale level revealed that the MCI-R Cognitive Avoidance in controllable situations was correlated with two CAQ cognitive avoidance strategies in particular: namely, the use of Thought Suppression ( $r = .22, p = .001$ ) and the Avoidance of Threatening Stimuli ( $r = .17, p = .012$ ).

It could be argued that this distinction between controllable versus uncontrollable threat scenarios is an artifact of the ego- versus physical-threat distinction made by Krohne and colleagues (2000). It should be noted, however, that this ego-threat versus physical-threat distinction was not enough to account for the discrepancy in correlations between the CAQ and the MCI-R Cognitive Avoidance subscale in controllable versus uncontrollable situations. Specifically, the correlations between the CAQ and the two MCI-R Cognitive Avoidance subscales, namely cognitive avoidance in ego-threat situations and in physical-threat situations, both failed to reach significance ( $r = .10, p = .149$ , and  $r = .06, p = .365$ , respectively). As such, it would appear that it is the perceived controllability of the threatening scenario, and not the ego versus physical nature of the threat in-and-of-itself, that accounts for the discrepancy in correlations with the CAQ.

To examine Krohne and colleagues' (2000) suggestion that cognitive avoidance in uncontrollable situations would be an adaptive response whereas cognitive avoidance in controllable situations would be maladaptive, correlations were computed between the MCI-R Cognitive Avoidance in controllable and uncontrollable situations measures and worry. The MCI-R Cognitive Avoidance in controllable situations showed moderate positive correlations with both the PSWQ ( $r = .34, p < .001$ ) and the CWQ ( $r = .34, p < .001$ ). The use of cognitive avoidance in uncontrollable situations was also positively correlated with worry, but significantly less so for both the PSWQ and CWQ ( $r = .20, p = .004$ , Fisher's  $Z = 2.11, p < .01$ , and  $r = .17, p < .014$ , Fisher's  $Z = 2.47, p < .001$ , respectively).

Krohne and colleagues' (2000) suggestion that vigilance in controllable situations would be an adaptive response whereas vigilance in uncontrollable situations would be

maladaptive was also examined by computing correlations of these measures with worry. Notably, stronger negative correlations with the CAQ ( $r = -.43, p < .001$ ) were found for vigilant coping responses in controllable situations as compared to the use of vigilance in uncontrollable situations ( $r = -.26, p < .001$ , Fisher's  $Z = 2.86, p < .001$ ). Similarly, when compared with worry, the MCI-R Vigilance in controllable situations showed stronger negative correlations with worry ( $r = -.48, p < .001$  with the PSWQ;  $r = -.49, p < .001$  with the CWQ) than vigilance in uncontrollable situations ( $r = -.45, p < .001$  with the PSWQ;  $r = -.36, p < .001$  with the CWQ), though this difference was only significant for worry as measured by the CWQ (Fisher's  $Z = 2.21, p < .001$ ). In both cases, however, the direction of the relationship between vigilance and worry continued to be negative.

With respect to the MBSS, Krohne (1996) noted that the four scenarios that make up the Monitoring and Blunting scales are uncontrollable situations. Following Krohne and colleagues' (2000) reasoning that information-seeking in uncontrollable situations would be a maladaptive response, whereas information-avoidance in uncontrollable situations would be more adaptive, correlations between the MBSS scales and measures of worry were examined. As would be expected if information-seeking in uncontrollable situations is maladaptive, the MBSS Monitoring subscale was shown to have significant positive correlations with worry (see Table 5). The MBSS Blunting subscale was unrelated to worry as measured by both the PSWQ and the CWQ (see Table 5).

#### *Regression Analyses Predicting Worry*

Finally, to further examine the predictive validity of the CAQ with respect to worry, hierarchical multiple regressions were conducted to determine if the CAQ showed a unique relationship with worry after accounting for the other measures of cognitive

avoidance. Given the unexpected associations between the CAQ and Monitoring, and the strong negative correlation between the CAQ and Vigilance, the measures of information-seeking were included as well. Two separate regressions were conducted, predicting excessive generalized worry as measured by the PSWQ and catastrophic worry as measured by the PSWQ, respectively. In both analyses, gender (female gender coded as 0, male gender coded as 1) and age were entered in the first step of the regression. The measures of information-avoidance and information-seeking dispositional coping styles were entered on the second step, and the WBSI Thought Suppression factor was then entered on the third step. Finally, the CAQ total score was entered on fourth step of the analyses.

Results of the regressions predicting the PSWQ and CWQ were highly similar (see Tables 7 and 8, respectively). In both instances, the MCI-R Vigilance (negatively) and MCI-R Cognitive Avoidance (positively) significantly predicted worry, and the WBSI Thought Suppression factor was also found to (positively) contribute to the prediction of worry on the third step. Nonetheless, the CAQ was found to contribute significantly (and positively) to the prediction of worry, though the effect size was small ( $\Delta R^2 = .04$  and  $\Delta R^2 = .11$  for the PSWQ and CWQ, respectively).

#### Discussion

The results of this study provide preliminary evidence of the psychometric properties of the English translation of the CAQ. Both the CAQ total scale and its subscales demonstrated good to excellent internal consistency and test-retest reliability. In fact, the CAQ total scale and subscales showed internal consistency and test-retest coefficients comparable to those of the original French scale (Gosselin et al., 2002;

Langlois et al., 1996). Confirmatory factor analysis of the CAQ supported the five-scale structure of the CAQ, though the overall goodness-of-fit of the model was less than recommended by conventional standards (Tabachnick & Fidell, 2001).

The CAQ also showed evidence of convergent and divergent validity. The CAQ was highly positively correlated with thought suppression as measured by the WBSI. One of the CAQ subscales, Thought Suppression, was positively correlated with the MCI-R Cognitive Avoidance subscale, and the Avoidance of Threatening Stimuli subscale showed a trend in the same direction. The CAQ Distraction subscale was positively correlated with MBSS Blunting subscale. In addition, the CAQ total score was negatively correlated with the MCI-R Vigilance subscale. Contrary to expectations, the CAQ was positively correlated with the MBSS Monitoring subscale. Thus, it would appear that the MCI-R Cognitive Avoidance and MBSS Blunting scales predominantly sample specific types of cognitive avoidance strategies, namely distraction and avoidance on the MCI-R and distraction on the MBSS, rather than the full range of cognitive avoidance strategies available. By comparison, the MCI-R Vigilance subscale appears to measure a broader range of cognitive avoidance strategies.

With regard to the measures of dispositional coping, closer examination of the threatening scenarios presented in each measure suggested that the MCI-R and MBSS may be assessing a range of both maladaptive and adaptive coping responses, depending on the context of the situation. Krohne and colleagues (2000) noted that information-seeking and information-avoidance strategies can be either adaptive or maladaptive depending on the nature of the situation. Specifically, information-seeking may be adaptive in controllable situations but less so in uncontrollable situations (Krohne et al.,

2000). Conversely, the use of cognitive avoidance strategies would be considered maladaptive in controllable situations (Krohne et al., 2000). On these occasions, the adaptive response would instead be to scan for information that could point to more effective ways of coping with the threat. The use of cognitive avoidance in uncontrollable situations may also be adaptive if it allows the individual to reduce negative affect while the situation is unfolding.

Subsequent analyses examining the controllable versus uncontrollable nature of the threatening situations presented in the MCI-R in particular suggested that the CAQ may be more related to maladaptive cognitive avoidance. With regard to information-avoidance, the CAQ was found to be unrelated to items on the MCI-R Cognitive Avoidance subscale measuring the use of cognitive avoidance when in uncontrollable situations. The CAQ did, however, show a significant positive correlation with the use of cognitive avoidance when in controllable situations. This maladaptive use of cognitive avoidance in controllable situations was further shown to be positively correlated with worry. As such, it appears that the CAQ is correlated with the tendency to employ cognitive avoidance maladaptively in controllable situations and not with the tendency to employ cognitive avoidance strategies adaptively in uncontrollable situations.

In keeping with the conceptualization of the CAQ as a measure of maladaptive cognitive avoidance, the MBSS Blunting subscale was unrelated to the CAQ total score, though it showed a significant positive correlation with the CAQ Distraction subscale. As noted by Krohne (1996), the MBSS situations are all uncontrollable in nature. Blunting or cognitive avoidance strategies may not be maladaptive in these types of situations, and in fact the MBSS Blunting subscale did not show significant correlations

with worry as measured by either the PSWQ or the CWQ. The lack of a significant correlation between the CAQ total score and the MBSS Blunting scale suggests that the CAQ is measuring more maladaptive forms of cognitive avoidance.

With regard to divergent validity, the CAQ was found to be negatively correlated with the MCI-R Vigilance subscale, as previously discussed. This finding applied to both the use of vigilance in controllable and in uncontrollable situations. Notably, however, the negative correlation between the CAQ and the MCI-R Vigilance scale decreased significantly when only the use of adaptive vigilance in controllable situations was considered. Nonetheless, the MCI-R Vigilance subscale appears generally to measure adaptive vigilance rather than maladaptive hypervigilance and is notably negatively correlated with worry.

Further examination of the MCI-R Vigilance subscale items suggested that the information-seeking coping responses measured by the MCI-R are largely adaptive as well. Examples of vigilant coping strategies measured by the MCI-R include, "I read the security instructions for emergencies and look for the nearest emergency exit," "I think about how this mistake could happen and how I can avoid a repetition," "I think about the various ways of getting help in case of danger," "I review the catalogue listing the questions that will be asked during the examination," "In the waiting room, I carefully read the information leaflets about tooth diseases and treatments," and "I think about which questions might be asked after the speech." As such, the MCI-R Vigilance scale may be most accurately conceptualized as vigilant as opposed to hypervigilant responses to threat cues. If correct, this conceptualization of the MCI-R as a measure of adaptive information-seeking would explain the strong negative relationship with worry. This

conceptualization of the MCI-R Vigilance scale as adaptive coping further emphasizes the divergent validity of the CAQ, given the moderate negative relationship that exists between these two measures regardless of the controllability of the threatening situation.

With respect to the MBSS, however, it would appear that the Monitoring responses measure a more maladaptive form of information-seeking. Examples of items on the MBSS Monitoring subscale include “I would want the dentist to tell me when I would feel pain,” “I would watch the flow of water from my mouth to see if it contained blood,” “I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered the supervisor's opinion of me,” and “I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.” Such coping strategies seem to indicate hypervigilance, a scanning for signs of threat rather than for information to help cope with the situation, and in particular scanning for evidence that the situation may be unfolding negatively. Such vigilance would seem to be a more maladaptive form of information-seeking. Similarly, in the context of the uncontrollable situations presented in the MBSS, where little opportunity exists for effecting change in the threatening situation, monitoring would appear to constitute a maladaptive coping strategy.

Consistent with this view of the MBSS Monitoring scale as a measure of maladaptive information-seeking, the MBSS Monitoring scale was shown to have a significant positive correlation with worry. This conceptualization is further supported by previous research with the MBSS which found that high monitors had no greater capacity to imagine the threatening scenarios than did low monitors (or in other words did not show a tendency to further elaborate upon possible outcomes of the threatening



situation) (Muris, de Jong, & Suvrijn, 1995). Further, high monitors rated the situations as more threatening than did low monitors, particularly when imagining the threatening scenario (Muris et al., 1995). These findings suggest that high monitoring as measured by the MBSS is more likely to result in greater anxiety rather than in an increased awareness of the situation and possible means of coping with the threat. This increased anxiety may then lead to the use of cognitive avoidance strategies to manage that anxiety, as is suggested by the positive correlation between the MBSS Monitoring scale and the CAQ as well as by the positive correlation between the MBSS Monitoring and Blunting scales. As such, the CAQ may be related to the maladaptive use of both information-avoidant and information-seeking coping strategies.

According to current treatment models, the use of cognitive or other forms of avoidance is considered to be maladaptive to the extent that it hinders emotional processing of negative events or fears (see for example, Rachman, 1980; Rodriguez & Craske, 1993). The CAQ was primarily designed to assess cognitive avoidance strategies that are used to avoid distressing thoughts about threatening situations or fears. The MBSS and MCI-R, however, more directly assess the use of information-seeking and information-avoidant strategies during the threatening situation. As such, a cognitive avoidant coping style may constitute an adaptive response when employed in the situation itself, at least in the context of situations in which the individual has limited control. In the cognitive-behavioural treatment literature, there is also some evidence to suggest that the use of distraction during exposure to feared stimuli can enhance the treatment effect, or in other words lead to more rapid and equally enduring reductions in anxiety, in part because the perception of control over the situation is increased (see

Johnstone & Page, 2004). The results of this study would suggest that the use of cognitive avoidance strategies as measured by the CAQ is unrelated to this adaptive use of cognitive avoidance in the (uncontrollable) situation itself. Conversely, the maladaptive use of information-avoidant strategies in actual controllable situations appears to be related to the tendency to use cognitive avoidance strategies to avoid distressing thoughts in general.

The results of the confirmatory factory analysis of the CAQ replicated the reported psychometric properties of the original French version. As expected, all items were found to load on their appropriate factors in concordance with the five-subscale structure proposed. The lower overall goodness-of-fit may, however, may be a result of the complex items found in the French validation study. Specifically, in their validation study with adults, Gosselin et al. (2002) found that items 3, 15, and 19 from the Transformation of Images into Thoughts subscale loaded equally highly on the Thought Suppression factor, and items 11 and 20 from the Thought Substitution subscale loaded more highly on the Distraction factor. Items 2, 8, and 13 also were also found to load on more than one factor in the adult sample. Further, this study found low item-factor correlations and low item-total correlations for items 4 and 25 in particular. Future revisions of the scale may want to examine these items more closely and to consider eliminating complex or low-loading items to form shorter but more distinguishable and internally consistent subscales.

Given that the original development of the QEC was not empirically-driven (clinical experience and theoretical considerations lead to initial item formulations), we chose not to add additional parameters (pathways) to the model to improve the overall

goodness-of-fit of the confirmatory factor analysis. Such a procedure would have limited generalizability across the English and French versions of the questionnaire and would also have been at odds with the clinical and theoretical rationale behind the creation of the CAQ's five subscales. The obtained goodness-of-fit, while not necessarily considered sufficient by strict empirical standards, may arguably be considered adequate for a theoretically-derived clinical measurement tool. Further, analysis using the multivariate Wald test for dropping model parameters failed to reveal any pathways that were not contributing to the overall goodness-of-fit of the model, and all pathways were in fact statistically significant. The five-factor structure of the CAQ therefore seemed to be the most parsimonious and perhaps most clinically useful solution. Further examination of the clinical utility of these subscales in future studies is warranted, however.

This study had several limitations. First, it is not clear whether the MBSS and MCI-R are measuring exactly what they propose to measure, at least in the context of the present study, and therefore the convergent and divergent validity of CAQ with these measures is somewhat obscured. Specifically, it appears that information-seeking as measured by the MBSS Monitoring scale is not the same construct that is measured by the MCI-R Vigilance scale; rather, the Monitoring subscale appears to assess hypervigilance, while the MCI-R Vigilance scale assesses more adaptive information-seeking. Similarly, the MBSS Blunting scale may be assessing adaptive information-avoidance, while the MCI-R Cognitive Avoidance subscale assesses both adaptive and maladaptive avoidant coping responses. In this context, it is difficult to establish the overlap of the CAQ with these coping measures. Secondly, the current study compared

the CAQ with other self-report measures of vigilance and avoidance, but did not include behavioural measures of these dispositional characteristics or of the more specific strategies assessed by the CAQ. It is not clear, for instance, if the CAQ Transformation of Images into Thoughts subscale is measuring a construct that is consciously accessible to individuals so that they can provide accurate self-report data. While the preliminary psychometric findings of this study suggest that the CAQ is reliable as a self-report measure, behavioural validation of the five cognitive avoidance strategies is necessary to determine if individuals can accurately self-report on the use of these strategies in threatening situations. Finally, the obtained goodness-of-fit of the five-subscale structure was lower than expected, though arguably acceptable for a theoretically-derived clinical measure.

Nonetheless, the results of this study provide preliminary evidence of the psychometric properties of the English version of the CAQ. Specifically, the current study found good test-retest reliabilities for the total scale and subscales over a 5-week period and good internal consistency (excellent for total scale and good to very good for the subscales). In terms of convergent validity, strong correlations were found with a commonly-used measure of cognitive avoidance, namely the Thought Suppression factor of the White Bear Suppression Inventory. Evidence of the divergent validity of the CAQ was also observed in the moderate correlation with the MCI-R Vigilance subscale. Given the unexpected correlations with the MCI-R Cognitive Avoidance subscale and both the MBSS Monitoring and Blunting subscales, however, further investigation of the overlap between the CAQ and these coping measures is warranted.

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## Appendix A

**Consent Form to Participate in Research**

This is to state that I, \_\_\_\_\_, agree to participate in a program of research conducted by Kathryn Sexton from the Anxiety Disorders Laboratory under the supervision of Dr. Michel Dugas, both of whom may be reached at 848-2424 Ext. 2229.

**A. PURPOSE**

I have been informed that the purpose of this research is to validate a measure of cognitive avoidance, which will be used in the investigation of the processes which contribute to worry and anxiety.

**B. PROCEDURE**

I have been informed that the study involves the following procedures: I will be asked to sign a consent form, and fill out a brief general information sheet. Then, I will be asked to complete a questionnaire measuring cognitive avoidance strategies. This questionnaire should take approximately 5 minutes to complete. Upon completion of these questionnaires, I may then decide to end my participation or to continue in the study. In 5 weeks time, I will be invited in class to participate in the re-test portion of the study. If I decide to continue in the study at that time, I will then be asked to complete the same questionnaire a second time in class. Alternatively, if I decide to continue but am not available for the re-testing in class, I may be contacted and asked to drop by the Anxiety Disorders Laboratory to complete the same questionnaire a second time. There is no deception in this experiment and I will not be required to do any task other than those described above. My name will only appear on the consent form, and code numbers alone will be used to label the questionnaires. The signed consent form will not be kept with my responses to the questionnaires; all these documents will be kept under lock and key. I understand that my participation in the experiment, and the information I provide, are strictly confidential.

**CONDITIONS OF PARTICIPATION:**

- I understand that I am free to decline to participate in the experiment without negative consequences.
- I understand that I am free to withdraw my consent and discontinue my participation at any time without negative consequences.
- I understand that my participation in this study is confidential (i.e. the researcher will know, but will not disclose my identity).
- I understand that the data from this study may be published.
- I understand the purpose of this study and know that there is no hidden motive of which I have not been fully informed.

I HAVE CURRENTLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print) \_\_\_\_\_

SIGNATURE \_\_\_\_\_

WITNESS SIGNATURE \_\_\_\_\_

DATE \_\_\_\_\_

**If you are interested in participating in future studies at our lab, please check off the box below and provide your telephone number.**

Yes, I would like to participate in future studies. Please contact me at:  
**TELEPHONE NUMBER:** \_\_\_\_\_

No, I do not wish to participate in future studies.

## Appendix B

## Cognitive Avoidance Questionnaire

People react differently to certain types of thoughts. Using the following scale, please indicate to what extent each of the following statements is typical of the way that you respond to certain thoughts. Please circle the appropriate number (1 to 5).

	Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
1. There are things that I would rather not think about. ....	1	2	3	4	5
2. I avoid certain situations that lead me to pay attention to things I don't want to think about. ....	1	2	3	4	5
3. I replace threatening mental images with things I say to myself in my mind. ....	1	2	3	4	5
4. I think about things that concern me as if they were occurring to someone else. ....	1	2	3	4	5
5. I have thoughts that I try to avoid. ...	1	2	3	4	5
6. I try not to think about the most upsetting aspects of some situations so as not to be too afraid. ....	1	2	3	4	5
7. I sometimes avoid objects that can trigger upsetting thoughts. ....	1	2	3	4	5
8. I distract myself to avoid thinking about certain disturbing subjects. ...	1	2	3	4	5
9. I avoid people who make me think about things that I do not want to think about. ....	1	2	3	4	5
10. I often do things to distract myself from my thoughts. ....	1	2	3	4	5

		Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
11.	I think about trivial details so as not to think about important subjects that worry me. .... 1	1	2	3	4	5
12.	Sometimes I throw myself into an activity so as not to think about certain things. .... 1	1	2	3	4	5
13.	To avoid thinking about subjects that upset me, I force myself to think about something else. .... 1	1	2	3	4	5
14.	There are things I try not to think about. .... 1	1	2	3	4	5
15.	I keep saying things to myself in my head to avoid visualizing scenarios (a series of mental images) that frighten me. .... 1	1	2	3	4	5
16.	Sometimes I avoid places that make me think about things I would prefer not to think about. .... 1	1	2	3	4	5
17.	I think about past events so as not to think about future events that make me feel insecure. .... 1	1	2	3	4	5
18.	I avoid actions that remind me of things I do not want to think about. 1	1	2	3	4	5
19.	When I have mental images that are upsetting, I say things to myself in my head to replace the images. .... 1	1	2	3	4	5
20.	I think about many little things so as not to think about more important matters. .... 1	1	2	3	4	5
21.	Sometimes I keep myself occupied just to prevent thoughts from popping up in my mind. .... 1	1	2	3	4	5

	Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
22. I avoid situations that involve people who make me think about unpleasant things. .... 1	1	2	3	4	5
23. Rather than having images of upsetting events form in my mind, I try to describe the events using an internal monologue (things that I say to myself in my head). .... 1	1	2	3	4	5
24. I push away the mental images related to a threatening situation by trying to describe the situation using an internal monologue. .... 1	1	2	3	4	5
25. I think about things that are worrying other people rather than thinking about my own worries. .... 1	1	2	3	4	5

Translated from: Gosselin, P., Langlois, F., Freeston, M. H., Ladouceur, R., Dugas, M. J., & Pelletier, O. (2002). Le Questionnaire d'Evitement Cognitif (QEC): Développement et validation auprès d'adultes et d'adolescents. *Journal de Thérapie Comportementale et Cognitive*, 12, 24-37.



## Appendix C

## Penn State Worry Questionnaire

Please circle a number (1 to 5) that best describes how typical or characteristic each item is of you.

		Not at all typical	Somewhat typical	Very typical		
1.	If I don't have enough time to do everything, I don't worry about it. ....	1	2	3	4	5
2.	My worries overwhelm me. ....	1	2	3	4	5
3.	I don't tend to worry about things. ....	1	2	3	4	5
4.	Many situations make me worry. ....	1	2	3	4	5
5.	I know I shouldn't worry about things but I just can't help it. ....	1	2	3	4	5
6.	When I'm under pressure, I worry a lot. ....	1	2	3	4	5
7.	I am always worrying about something. ....	1	2	3	4	5
8.	I find it easy to dismiss worrisome thoughts.	1	2	3	4	5
9.	As soon as I finish one task, I start to worry about everything else I have to do. ...	1	2	3	4	5
10.	I never worry about anything. ....	1	2	3	4	5
11.	When there is nothing more that I can do about a concern, I don't worry about it anymore. ....	1	2	3	4	5
12.	I've been a worrier all my life. ....	1	2	3	4	5
13.	I notice that I have been worrying about things. ....	1	2	3	4	5
14.	Once I start worrying, I can't stop. ....	1	2	3	4	5
15.	I worry all the time. ....	1	2	3	4	5
16.	I worry about projects until they are all done.	1	2	3	4	5

Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487-495.

## Appendix D

## Catastrophic Worrying Questionnaire

The statements below describe what a person might think and feel when they worry about something in their lives. Please read each statement very carefully and then circle the number from the scale below that best describes how typical or characteristic the statement is of you when you worry.

		Not at all typical		Somewhat typical		Very typical
1.	When I begin to worry, I find that one worry leads to a worse worry and that leads to an even worse worry and so on. ...	1	2	3	4	5
2.	When I worry, I often feel afraid that something horrible is going to happen. ....	1	2	3	4	5
3.	The things that I worry about happening to me or my family are much more dreadful than the things that other people worry about. ...	1	2	3	4	5
4.	When I worry about something, I often think of the worst possible outcome. ....	1	2	3	4	5
5.	I often worry about a number of horrible things that could happen to me or my loved ones. ....	1	2	3	4	5
6.	I avoid certain situations because I worry that something terrible will happen. ....	1	2	3	4	5
7.	I often worry that something I do will have terrible consequences. ....	1	2	3	4	5
8.	When something bad happens, I often worry that it is going to lead to something even worse. ....	1	2	3	4	5
9.	Sometimes when I worry, I think of many terrible things that could happen. ....	1	2	3	4	5
10.	When I worry about something, I usually think that it will get much worse rather than better. ....	1	2	3	4	5

Belzer, K. D., & D'Zurilla, T. J. (1999, November). *The Catastrophic Worrying Questionnaire: Development and Psychometric Properties*. Poster session presented at the 33rd Annual Convention of the Association for Advancement of Behavior Therapy, Toronto, ON, Canada.

## Appendix E

## White Bear Suppression Inventory

This questionnaire deals with thoughts. There are no right or wrong answers, so please respond honestly to each of the statements presented below. Please indicate your answers by circling the appropriate number on the scale.

		Strongly Disagree	Moderately Disagree	Neutral or Don't Know	Moderately Agree	Strongly Agree
1.	There are things I prefer not to think about. ....	1	2	3	4	5
2.	Sometimes I wonder why I have the thoughts I do. ....	1	2	3	4	5
3.	I have thoughts that I cannot stop. ....	1	2	3	4	5
4.	There are images that come to mind that I cannot erase. ...	1	2	3	4	5
5.	My thoughts frequently return to one idea. ....	1	2	3	4	5
6.	I wish I could stop thinking of certain things. ...	1	2	3	4	5
7.	Sometimes my mind races so fast I wish I could stop it. ...	1	2	3	4	5
8.	I always try to put problems out of my mind. ...	1	2	3	4	5
9.	There are thoughts that keep jumping into my head. ...	1	2	3	4	5
10.	Sometimes I stay busy just to keep thoughts from intruding on my mind. ....	1	2	3	4	5
11.	There are things that I try not to think about. ....	1	2	3	4	5

		Strongly Disagree	Moderately Disagree	Neutral or Don't Know	Moderately Agree	Strongly Agree
12.	Sometimes I really wish I could stop thinking. ....	1	2	3	4	5
13.	I often do things to distract myself from my thoughts. ...	1	2	3	4	5
14.	I have thoughts that I try to avoid. ....	1	2	3	4	5
15.	There are many thoughts that I have that I don't tell anyone. ....	1	2	3	4	5

The White Bear Suppression Inventory. Wegner, D.M., & Zanakos, S. (1994). Chronic Thought Suppression. *Journal of Personality*, 62, 615-640.

## Appendix F

## Mainz Coping Inventory Revised

On the following pages, some situations are listed that you will have either experienced yourself in one way or another, or that you can imagine vividly.

You will find a number of sentences accompanying every situation. These sentences comprise thoughts and ideas that could arise in such situations. There are two possible answers behind every sentence, i.e. "true" and "false".

Please, try to imagine that you are in these situations and then, please, check the circle that indicates whether the thoughts or ideas that are listed usually occur to you ("true") or not ("false").

Please, give an answer to every sentence. Moreover, there are no wrong or right answers.

1. Imagine that you have to make a speech to a group of people (i.e. participants of a course or seminar, parents at a meeting at their children's school) in about one hour.

In this situation...	True	False
1. ... I carefully review the topics I'm going to present. ....	T	F
2. ... I tell myself: "Everything will go well." .....	T	F
3. ... I don't think about the speech any more. ....	T	F
4. ... I think about what I can do if I lose track of what I wanted to say....	T	F
5. ... I'm considerably more strained than most people I know. ....	T	F
6. ... I prefer to talk with friends about something different than the speech. ....	T	F
7. ... I think about which questions might be asked after the speech. ....	T	F
8. ... I stay completely calm. ....	T	F
9. ... I remember the advice of people who already had to make a similar speech. ....	T	F
10. ... I tell myself: "I've been able to cope with situations that were far more trying. ....	T	F

2. Imagine that you haven't been to the dentist for quite a long time. You are now sitting in his waiting room because you are having problems with your teeth.

In this situation...	True	False
1. ... I imagine that the treatment will be quite unpleasant for me. ....	T	F
2. ... I tell myself that the dentist probably can treat the reason for the toothache quickly and effectively. ....	T	F
3. ... I stay completely calm. ....	T	F
4. ... In the waiting room, I carefully read the information leaflets about tooth diseases and treatments. ....	T	F
5. ... I wonder whether anything might go wrong in the course of the dental treatment (such as while drilling). ....	T	F
6. ... I remember previous dental treatments. ....	T	F
7. ... I tell myself: "Until now, my teeth have always been in a quite good condition, so this time, as well, it won't be anything serious. ....	T	F
8. ... I try to think as little as possible about the impending treatment. ...	T	F
9. ... I don't lose my composure as easily as most others. ....	T	F
10. ... I wonder whether one treatment will be sufficient or whether further treatments will be necessary. ....	T	F

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3. Imagine that you will have an important examination the next morning.

In this situation...	True	False
1. ... I imagine that I could be surprised by unexpected questions. ....	T	F
2. ... I try not to think about the examination and do something else. ....	T	F
3. ... I remember previous examinations. ....	T	F
4. ... I stay calmer than most people I know. ....	T	F
5. ... I tell myself that the examination will probably proceed in a fair way. ....	T	F
6. ... I review the catalogue listing the questions that will be asked during the examination. ....	T	F
7. ... I tell myself: "I will pass this examination at any rate." ....	T	F
8. ... I once again ask my friends who have already taken the examination which questions they were asked. ....	T	F
9. ... I tell myself: "I've coped with situations that were far more difficult." ....	T	F
10. ... I think about what I can do if I have difficulties with some questions. ....	T	F

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4. Imagine that you are walking alone through town in the late evening. A group of people, who look suspicious, approach you from out of a side street.

In this situation...	True	False
1. ... I stay completely calm. ....	T	F
2. ... I think about what they are up to. ....	T	F
3. ... I think about the various ways of getting help in case of danger. ...	T	F
4. ... I tell myself: "They must have been in a bar and now they are going home." ....	T	F
5. ... I look at a shop window. ....	T	F
6. ... I watch the people carefully. ....	T	F
7. ... I tell myself: "I really shouldn't have walked along here." ....	T	F
8. ... I act as if those people have nothing to do with me. ....	T	F
9. ... I remember similar situations. ....	T	F
10. ... I tell myself that those people probably are completely harmless. ..	T	F

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- 
5. Imagine that you applied for a job and that, in a few minutes, your application interview will start.

In this situation...	True	False
1. ... I think of things I could have done to be better prepared for the talk. ....	T	F
2. ... I think about how to behave if the talk takes a critical turn. ....	T	F
3. ... I stay completely relaxed. ....	T	F
4. ... I turn to something else (i.e. I watch the pictures which hang on the wall in the corridor, I read magazines). ....	T	F
5. ... I tell myself: "It won't be all that bad." ....	T	F
6. ... I carefully read the wording of the job advertisement once again. ..	T	F
7. ... I remember similar situations which were very important for me. ..	T	F
8. ... I imagine the consequences if I don't get the job. ....	T	F
9. ... I stay calmer than most people I know in a similar situation. ....	T	F
10. ... I decide not to think about the talk any more. ....	T	F

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6. Imagine that you are a front seat passenger next to an obviously inexperienced driver. Road conditions are poor due to snow and ice.

In this situation...	True	False
1. ... I tell myself: "In future, I'll only go on rides like this if I have informed myself better about the road conditions." .....	T	F
2. ... I tell myself that we will arrive safely. ....	T	F
3. ... I tell myself: "When one has fastened one's seat belt and is moreover driving so slowly, nothing much can happen." .....	T	F
4. ... I carefully watch the driver and the road. ....	T	F
5. ... I stay completely calm. ....	T	F
6. ... I tell myself: "As a passenger, one often perceives the driver's way of driving as unsteady, whereas in fact he's driving quite well." .....	T	F
7. ... I just stop looking at the road but relax. ....	T	F
8. ... I try to tell in advance when he's going to make a mistake. ....	T	F
9. ... I imagine everything that could go wrong. ....	T	F
10. ... I remember similar situations. ....	T	F

7. Imagine that you have made a mistake on the job which shouldn't have happened and that you are to have a talk with your boss.

In this situation...	True	False
1. ... I stay calmer than most of my colleagues. ....	T	F
2. ... I remember similar unpleasant situations. ....	T	F
3. ... I ask my colleagues what I have to expect from this situation. ....	T	F
4. ... I think about what I can do if he reproaches me. ....	T	F
5. ... I ask myself: "Until now, I have done quite a good job, so it won't go all that badly for me. ....	T	F
6. ... I tell myself, that I've coped with situations that were far more trying. ....	T	F
7. ... I calmly finish all the other tasks first. ....	T	F
8. ... I imagine how unpleasant it could get. ....	T	F
9. ... I first relax and don't think about the talk. ....	T	F
10. ... I think about how this mistake could happen and how I can avoid a repetition. ....	T	F

8. Imagine that you are sitting in an airplane. The flight has been turbulent for quite a while now, the "No Smoking" and "Fasten Seat Belts" signs have lit up.

In this situation...	True	False
1. ... I pay attention to how the other passengers behave. ....	T	F
2. ... I tell myself the signs "No Smoking" and "Please Fasten Seat Belts" light up for inconsequential reasons which, in reality, don't mean anything. ....	T	F
3. ... I think about how I could behave in an emergency case. ....	T	F
4. ... I put on the earphone and listen to music. ....	T	F
5. ... I read the security instructions for emergencies and look for the nearest emergency exit. ....	T	F
6. ... I read my newspaper or a book. ....	T	F
7. ... I listen to the sound of the engines. ....	T	F
8. ... I tell myself: "These are completely normal turbulences that occur during every flight." ....	T	F
9. ... I ask the crew and pay attention to the announcements. ....	T	F
10. ... I stay completely calm and cool. ....	T	F

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Krohne, H. W., Egloff, B., Varner, L. J., Burns, L. R., Weidner, G., & Ellis, H. C. (2000). The assessment of dispositional vigilance and cognitive avoidance: Factorial structure, psychometric properties, and validity of the Mainz Coping Inventory. *Cognitive Therapy and Research*, 24, 297-311.

## Appendix G

## Miller Behavioral Style Scale

1. Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do? Check **all** of the statements that might apply to you.

I would ask the dentist exactly what he/she was going to do.

I would take a tranquilizer or have a drink before going.

I would try to think about pleasant memories.

I would want the dentist to tell me when I would feel pain.

I would try to sleep.

I would watch all the dentist's movements and listen for the sound of the drill.

I would watch the flow of water from my mouth to see if it contained blood.

I would do mental puzzles in my mind.

2. Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do? Check **all** of the statements that might apply to you.

I would sit by myself and have as many daydreams and fantasies as I could.

I would stay alert and try to keep myself from falling asleep.

I would exchange life stories with the other hostages.

If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.

I would watch every movement of my captors and keep an eye on their weapons.

I would try to sleep as much as possible.

I would think about how nice it's going to be when I get home.

I would make sure I knew where every possible exit was.

3. Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Check **all** of the statements that might apply to you.

\_\_\_ I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.

\_\_\_ I would review the list of duties for my present job and try to figure out if I had fulfilled them all.

\_\_\_ I would go to the movies to take my mind off things.

\_\_\_ I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered the supervisor's opinion of me.

\_\_\_ I would push all thoughts of being laid off out of my mind.

\_\_\_ I would tell my spouse/significant other that I'd rather not discuss my chances of being laid off.

\_\_\_ I would try to think which employees in my department the supervisor might have thought had done the worst job.

\_\_\_ I would continue doing my work as if nothing special was happening.

4. Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Check **all** of the statements that might apply to you.

\_\_\_ I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.

\_\_\_ I would make small talk with the passenger beside me.

\_\_\_ I would watch the end of the movie, even if I had seen it before.

\_\_\_ I would call for the flight attendant and ask her exactly what the problem was.

\_\_\_ I would order a drink or a tranquilizer from the flight attendant.

\_\_\_ I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.

\_\_\_ I would talk to the passenger beside me about what might be wrong.

\_\_\_ I would settle down and read a book or magazine or write a letter.

Miller, S. M. (1987). Monitoring and blunting: Validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology*, 52, 345-353.



## Appendix H

## Debriefing Form

**The Cognitive Avoidance Questionnaire: Validation of the English Translation**

The purpose of this research was to validate a measure of cognitive avoidance, which will be used in the investigation of the processes which contribute to worry and anxiety. The Cognitive Avoidance Questionnaire (CAQ) (Langlois, Lachance, Provencher, Freeston, Dugas, Talbot et al., 1996) measures cognitive avoidance strategies related to worry and generalized anxiety disorder. The five strategies assessed consist of the avoidance of disturbing thoughts, distraction, thought suppression, substitution of disturbing thoughts, and the transformation of mental images into verbal thought. This study sought to demonstrate the reliability of this measure by examining the scale's items and by assessing the stability of this measure over time. This study also sought to establish the validity of this measure by comparing it to other measures of thought suppression, vigilance and behavioural avoidance, monitoring/information-seeking and information-avoidance, and two measures of the frequency of worry and catastrophic worry.

The validation of this measure will enable future studies to examine the role of cognitive avoidance in worry and in other anxiety disorders, as well as the processes that contribute to avoidance behaviours, so that these processes may be more effectively targeted in the treatment of anxiety and excessive worry.

This research was conducted by Kathryn Sexton from the Anxiety Disorders Laboratory, under the supervision of Dr. Michel Dugas. If you have any questions or concerns, we can be reached at:

The Anxiety Disorders Laboratory  
Concordia University  
Department of Psychology  
L-SP-319.00  
Phone: (514) 848-2424 extension 2229  
Website: <http://www-psychology.concordia.ca/fac/dugas/>

If you have any concerns regarding the way in which this study was conducted or if you have any questions regarding the ethics of this research, please contact the Psychology Department Ethics Committee, chaired by Dr. Adam Radomsky, whose office is located in L-PY-135.4.

If you have any further interest in this subject, we have provided the following references for your information:

- Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: a preliminary test of a conceptual model. *Behaviour Research and Therapy*, 36, 215-226.
- Purdon, C. (1999). Thought suppression and psychopathology. *Behaviour Research and Therapy*, 37, 1029-1054.

Author Note

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Correspondence concerning this article should be addressed to Kathryn Sexton, Department of Psychology, L-SP-319, Concordia University, 7141 Sherbrooke St. West, L-SP-244, Montreal, Quebec, Canada H4B 1R6; Tel: (514) 848-2424 ext. 2229; Fax: (514) 848-4523; E-mail: [kasexton@alcor.concordia.ca](mailto:kasexton@alcor.concordia.ca).

Table 1

Means, Standard Deviations, and Corrected Item-Total Correlations of the CAQ ( $N = 436$ ).

No.	Item	<i>M</i>	<i>SD</i>	<i>r<sub>corr</sub></i>
1.	There are things that I would rather not think about.	2.95	1.10	.60
2.	I avoid certain situations that lead me to pay attention to things I don't want to think about.	2.57	1.09	.69
3.	I replace threatening mental images with things I say to myself in my mind.	2.44	1.19	.60
4.	I think about things that concern me as if they were occurring to someone else.	1.95	1.13	.34
5.	I have thoughts that I try to avoid.	2.70	1.16	.66
6.	I try not to think about the most upsetting aspects of some situations so as not to be too afraid.	2.45	1.14	.60
7.	I sometimes avoid objects that can trigger upsetting thoughts.	2.32	1.19	.64
8.	I distract myself to avoid thinking about certain disturbing subjects.	2.57	1.19	.73
9.	I avoid people who make me think about things that I do not want to think about.	2.52	1.26	.63
10.	I often do things to distract myself from my thoughts.	2.56	1.13	.67
11.	I think about trivial details so as not to think about important subjects that worry me.	2.21	1.04	.66
12.	Sometimes I throw myself into an activity so as not to think about certain things.	2.71	1.21	.63
13.	To avoid thinking about subjects that upset me, I force myself to think about something else.	2.50	1.16	.77
14.	There are things I try not to think about.	2.78	1.16	.73
15.	I keep saying things to myself in my head to avoid visualizing scenarios (a series of mental images) that frighten me.	2.11	1.09	.66
16.	Sometimes I avoid places that make me think about things I would prefer not to think about.	2.22	1.15	.73
17.	I think about past events so as not to think about future events that make me feel insecure.	1.95	1.12	.56
18.	I avoid actions that remind me of things I do not want to think about.	2.14	1.02	.76

No.	Item	<i>M</i>	<i>SD</i>	<i>r<sub>corr</sub></i>
19.	When I have mental images that are upsetting, I say things to myself in my head to replace the images.	2.35	1.14	.68
20.	I think about many little things so as not to think about more important matters.	1.98	0.95	.59
21.	Sometimes I keep myself occupied just to prevent thoughts from popping up in my mind.	2.36	1.09	.66
22.	I avoid situations that involve people who make me think about unpleasant things.	2.42	1.17	.65
23.	Rather than having images of upsetting events form in my mind, I try to describe the events using an internal monologue (things that I say to myself in my head).	2.21	1.14	.60
24.	I push away the mental images related to a threatening situation by trying to describe the situation using an internal monologue.	2.10	1.13	.58
25.	I think about things that are worrying other people rather than thinking about my own worries.	2.09	1.13	.47

*Note.*  $r_{\text{corr}}$  = corrected item-total correlations.

Table 2

Inter-correlations and Univariate Summary Statistics for Subscales of the CAQ ( $N = 436$ ).

	Substitution	Transform	Distraction	Avoidance	Suppression	CAQ-Tot
Substitution	--	.58***	.65***	.64***	.62***	.81***
Transform		--	.63***	.64***	.61***	.82***
Distraction			--	.68***	.71***	.87***
Avoidance				--	.73***	.87***
Suppression					--	.87***
CAQ-Total						--
Mean	10.19	11.21	12.70	11.62	13.45	59.16
(SD)	(3.73)	(4.60)	(4.80)	(4.71)	(4.49)	(18.95)

*Note.* CAQ-Tot = Cognitive Avoidance Questionnaire total score; Substitution = CAQ Thought Substitution subscale; Transform = CAQ Transformation of Images into Thoughts subscale; Distraction = CAQ Distraction subscale; Avoidance = CAQ Avoidance of Threatening Stimuli subscale; Suppression = CAQ Thought Suppression subscale.

\*\*\*  $p < .001$ .

Table 3

Factor Loadings for Confirmatory Factor Analysis of the CAQ (N = 436).

No.	Item	I	II	III	IV	V	Err
1.	There are things that I would rather not think about.					.73	.68
2.	I avoid certain situations that lead me to pay attention to things I don't want to think about.					.77	.64
3.	I replace threatening mental images with things I say to myself in my mind.		.69				.72
4.	I think about things that concern me as if they were occurring to someone else.	.37					.93
5.	I have thoughts that I try to avoid.					.77	.64
6.	I try not to think about the most upsetting aspects of some situations so as not to be too afraid.					.60	.80
7.	I sometimes avoid objects that can trigger upsetting thoughts.				.66		.75
8.	I distract myself to avoid thinking about certain disturbing subjects.			.79			.61
9.	I avoid people who make me think about things that I do not want to think about.				.72		.69
10.	I often do things to distract myself from my thoughts.			.80			.60
11.	I think about trivial details so as not to think about important subjects that worry me.	.76					.65
12.	Sometimes I throw myself into an activity so as not to think about certain things.			.74			.68
13.	To avoid thinking about subjects that upset me, I force myself to think about something else.			.82			.57
14.	There are things I try not to think about.					.83	.56
15.	I keep saying things to myself in my head to avoid visualizing scenarios (a series of mental images) that frighten me.		.78				.63

No.	Item	I	II	III	IV	V	Err
16.	Sometimes I avoid places that make me think about things I would prefer not to think about.				.83		.57
17.	I think about past events so as not to think about future events that make me feel insecure.	.62					.79
18.	I avoid actions that remind me of things I do not want to think about.				.84		.54
19.	When I have mental images that are upsetting, I say things to myself in my head to replace the images.		.78				.63
20.	I think about many little things so as not to think about more important matters.	.71					.70
21.	Sometimes I keep myself occupied just to prevent thoughts from popping up in my mind.			.76			.66
22.	I avoid situations that involve people who make me think about unpleasant things.				.75		.66
23.	Rather than having images of upsetting events form in my mind, I try to describe the events using an internal monologue (things that I say to myself in my head).		.76				.65
24.	I push away the mental images related to a threatening situation by trying to describe the situation using an internal monologue.		.76				.65
25.	I think about things that are worrying other people rather than thinking about my own worries.	.52					.85

*Note.* All factor loadings significant at  $p < .05$ . Factor I = Thought Substitution; Factor II = Transformation of Images into Thoughts; Factor III = Distraction; Factor IV = Avoidance of Threatening Stimuli; Factor V = Thought Suppression; Err = standardized measurement error. Comparative Fit Index (CFI) = .88, Normed Goodness-of-Fit Index (NFI) = .84, Non-Normed Goodness-of-Fit Index (NNFI) = .86.

Table 4

Correlations Between Factors on the CAQ ( $N = 436$ ).

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1	--	.70	.85	.81	.76
Factor 2		--	.72	.73	.68
Factor 3			--	.78	.82
Factor 4				--	.83
Factor 5					--

*Note.* Factor I = Thought Substitution; Factor II = Transformation of Images into Thoughts; Factor III = Distraction; Factor IV = Avoidance of Threatening Stimuli; Factor V = Thought Suppression.

*Note.* All correlations significant at  $p < .05$ .



Table 5

Inter-correlations and Univariate Summary Statistics for Study Measures, Gender, and Age ( $N = 207$ ).

	CAQ	PSWQ	CWQ	WBSI-TS	MBSS-M	MBSS-B	MCIR-V	MCIR-A	Gender <sup>a</sup>	Age <sup>b</sup>
CAQ	--	.57***	.64***	.72***	.17*	.13	-.41***	.10	-.17*	-.02
PSWQ		--	.74***	.55***	.33***	-.10	-.54***	.32***	-.34***	-.01
CWQ			--	.52***	.28***	.02	-.51***	.30***	-.19**	-.07
WBSI-TS				--	.15*	.05	-.33***	.25**	-.28***	-.12
MBSS-M					--	.14*	-.46***	.17*	-.03	-.02
MBSS-B						--	-.09	-.31***	.08	-.05
MCIR-V							--	-.23**	.24**	-.08
MCIR-A								--	-.20**	-.11
Gender									--	.08
Age										--
Mean	62.00	47.25	24.76	21.86	8.99	4.30	54.46	56.75	--	22.61
(SD)	(18.23)	(14.35)	(9.65)	(6.22)	(3.31)	(2.46)	(7.27)	(6.69)	--	(4.24)

*Note.* CAQ = Cognitive Avoidance Questionnaire; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; WBSI-TS = White Bear Suppression Inventory – Thought Suppression factor; MBSS-M = Miller Behavioral Style Scale – Monitoring subscale; MBSS-B = Miller Behavioral Style Scale – Blunting subscale; MCIR-V = Mainz Coping Inventory Revised – Vigilance subscale; MCIR-A = Mainz Coping Inventory Revised – Cognitive Avoidance subscale.

<sup>a</sup>  $N = 206$ . Female gender coded as 0, male gender coded as 1. <sup>b</sup>  $N = 206$ .

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 6

CAQ Subscale Correlations with the Study Measures, Gender, and Age ( $N = 207$ ).

Variable	Substitution	Transform	Distraction	Avoidance	Suppression
PSWQ	.46***	.40***	.49***	.47***	.55***
CWQ	.52***	.52***	.47***	.55***	.57***
WBSI-TS	.49***	.49***	.69***	.60***	.67***
MBSS-M	.08	.15*	.18*	.13	.16*
MBSS-B	.11	.10	.15*	.09	.10
MCIR-V	-.37***	-.37***	-.30***	-.34***	-.33***
MCIR-A	.08	-.02	.03	.13	.20**
Gender <sup>a</sup>	-.13	-.07	-.21**	-.12	-.20**
Age <sup>b</sup>	-.03	.07	-.06	.02	-.10

*Note.* Substitution = CAQ Thought Substitution subscale; Transform = CAQ Transformation of Images into Thoughts subscale; Distraction = CAQ Distraction subscale; Avoidance = CAQ Avoidance of Threatening Stimuli subscale; Suppression = CAQ Thought Suppression subscale; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; WBSI-TS = White Bear Suppression Inventory – Thought Suppression factor; MBSS-M = Miller Behavioral Style Scale – Monitoring subscale; MBSS-B = Miller Behavioral Style Scale – Blunting subscale; MCIR-V = Mainz Coping Inventory Revised – Vigilance subscale; MCIR-A = Mainz Coping Inventory Revised – Cognitive Avoidance subscale.

<sup>a</sup>  $N = 206$ . Female gender coded as 0, male gender coded as 1. <sup>b</sup>  $N = 206$ .

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting Scores on the PSWQ (N = 207).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.11	12.77***			
Gender <sup>a</sup>			-9.36	1.85	-.33***
Age			0.05	0.23	.02
Step 2	.28	23.00***			
MBSS-M			0.50	0.27	.12
MBSS-B			-0.61	0.35	-.10
MCIR-V			-0.85	0.13	-.43***
MCIR-A			0.31	0.13	.14*
Step 3	.12	48.76***			
WBSI-TS			0.90	0.13	.39***
Step 4	.04	17.92***			
CAQ			0.24	0.06	.30***

*Note.* CAQ = Cognitive Avoidance Questionnaire; PSWQ = Penn State Worry Questionnaire; WBSI-TS = White Bear Suppression Inventory – Thought Suppression factor; MBSS-M = Miller Behavioral Style Scale – Monitoring subscale; MBSS-B = Miller Behavioral Style Scale – Blunting subscale; MCIR-V = Mainz Coping Inventory Revised – Vigilance subscale; MCIR-A = Mainz Coping Inventory Revised – Cognitive Avoidance subscale.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*  $p < .05$ ; \*\*\*  $p < .001$ .

Table 8

Summary of Hierarchical Regression Analysis for Variables Predicting Scores on the CWQ  
(N = 206).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.04	4.11*			
Gender <sup>a</sup>			-3.47	1.30	-.19**
Age			-0.13	0.16	-.06
Step 2	.27	19.88***			
MBSS-M			0.11	0.20	.04
MBSS-B			0.10	0.25	.02
MCIR-V			-0.60	0.09	-.45***
MCIR-A			0.28	0.10	.19**
Step 3	.10	34.49***			
WBSI-TS			0.56	0.10	.36***
Step 4	.11	42.91***			
CAQ			0.26	0.04	.48***

*Note.* CAQ = Cognitive Avoidance Questionnaire; CWQ = Catastrophic Worrying Questionnaire; WBSI-TS = White Bear Suppression Inventory – Thought Suppression factor; MBSS-M = Miller Behavioral Style Scale – Monitoring subscale; MBSS-B = Miller Behavioral Style Scale – Blunting subscale; MCIR-V = Mainz Coping Inventory Revised – Vigilance subscale; MCIR-A = Mainz Coping Inventory Revised – Cognitive Avoidance subscale.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

FACTORS LEADING TO COGNITIVE AVOIDANCE

An Investigation of the Factors Leading to Cognitive Avoidance in Worry

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## Abstract

This study is an exploration of the factors that may be contributing to cognitive avoidance, a maintaining factor in worry and generalized anxiety disorder (Borkovec, Ray, & Stöber, 1998; Dugas, Gagnon, Ladouceur, & Freeston, 1998). Negative beliefs about worry and the fear of anxiety were postulated to contribute to the use of cognitive avoidance strategies. Questionnaires were completed by 259 students at Concordia University in Montreal, Canada. Measures of cognitive avoidance, negative beliefs about worry, and the fear of anxiety were found to correlate with worry. Using hierarchical multiple regression analysis, negative beliefs about worry were found to predict cognitive avoidance. The fear of anxiety, and of somatic symptoms of anxiety in particular, also contributed to cognitive avoidance.

### An Investigation of the Factors Leading to Cognitive Avoidance in Worry

Cognitive avoidance has received increased attention of late as a maintaining factor in anxiety and particularly in generalized anxiety disorder (GAD). Borkovec and colleagues' theory of GAD (see Borkovec, Ray, & Stöber, 1998) suggests that worry itself is an avoidance behaviour. In a study investigating individuals' perception of the function of worry, worriers meeting diagnostic criteria for GAD were found to endorse the statement that worry serves as a distraction from more emotional topics more strongly than did nonclinical worriers (Borkovec & Roemer, 1995). Borkovec and colleagues (see for example, Borkovec & Inz, 1990; Borkovec et al., 1998) have proposed that by using repetitive, verbal thought, individuals with GAD avoid the mental imagery that can facilitate emotional processing. In particular, the use of worry as opposed to imagery in response to a stressor has been shown to decrease anxiety immediately following the stressor (Butler, Wells, & Dewick, 1995), but to subsequently produce an increase in the number of intrusive thoughts related to the stressor (Butler et al., 1995; Wells & Papageorgiou, 1995). This phenomenon suggests that emotional processing of the threatening situation has not occurred, and that instead, worry functioned to avoid anxiety in the short-term. However, other cognitive avoidance strategies in addition to verbal worry have also been identified in worry and anxiety.

Specific forms of cognitive avoidance, such as thought suppression, have been implicated in other anxiety disorders as well as in depression (Purdon, 1999). While some discrepancies exist in the literature, the paradoxical effects of thought suppression, or rather an increase in the frequency of intrusive thoughts following attempted suppression, have been demonstrated in depression, worry, post-traumatic stress disorder,



and obsessive-compulsive disorder (see Purdon, 1999, for a review). It remains unclear, however, what role thought suppression plays in the development of these disorders. Further, Purdon (1999) has suggested that the motivation to use thought suppression or other forms of cognitive avoidance may be specific to the emotional disorder considered. Thus, there is a need to investigate the role of specific cognitive avoidance strategies, and the interaction of these strategies with other contributing processes, in the various anxiety disorders separately.

With regard to GAD, the use of thought suppression has been found to exert paradoxical effects on intrusive thoughts most predominantly when individuals attempt to suppress their idiosyncratic worries. Becker, Rinck, Roth, and Margraf (1998) found that GAD patients were less able to suppress thoughts about their main worry than thoughts about a neutral target, whereas nonanxious individuals and individuals with speech phobia showed the opposite effect. This finding suggests that individuals with GAD may have more difficulty suppressing thoughts that are perceived as threatening, namely their own particular worries.

Thought suppression of emotional material in particular was examined in a study comparing the effects of suppression and expression on subsequent expression of thoughts (Roemer & Borkovec, 1994). Roemer and Borkovec found that the suppression of emotional material led to an increase in the frequency of statements directly related to the target thought. Conversely, initial expression of emotional material led to a later decrease in the number of target thoughts expressed. This increase occurred for both anxious and negative thoughts; the effect was marginally significant for neutral thoughts as well. In addition, Roemer and Borkovec found that suppression led to a greater

increase in anxiety about the target situation, regardless of the initial neutral or anxiety-provoking nature of the situation, whereas expression reduced subsequent anxiety.

Other cognitive avoidance strategies, in addition to thought suppression, may play a role in GAD. Coles and Heimberg (2005) found that both worry as a deliberate avoidance strategy (i.e. deliberate attempts to worry about more trivial issues) and punishment (self-directed anger) correlated with high levels of excessive and uncontrollable worry as well as with depression and low life satisfaction. As noted by Rassin, Merckelbach, and Muris (2000), however, the diverse forms of cognitive avoidance have not been adequately specified and distinguished. More specific measures to assess these various cognitive avoidance strategies are needed. The Cognitive Avoidance Questionnaire (CAQ; Gosselin et al., 2000) and its English translation (Sexton & Dugas, 2005) measure five avoidance strategies, including thought suppression and the transformation of mental imagery into verbal thought, as discussed above, as well as thought substitution, distraction, and the avoidance of threatening stimuli. The CAQ has been found to correlate with worry in clinical populations (Dugas, Marchand, & Ladouceur, 2005) and has also been shown to decrease with cognitive-behavioural treatment of worry (Dugas et al., 2004). The CAQ may therefore allow for a more detailed examination of the specific cognitive avoidance strategies involved in worry.

While cognitive avoidance has been implicated in the pathogenesis of worry and generalized anxiety disorder, the question arises as to whether cognitive avoidance is itself caused by other factors related to worry. In other words, cognitive avoidance may be a consequence of other worry-related processes or may mediate the impact of these other processes on worry. Rassin and colleagues (2000) have noted that while thought

suppression and other forms of cognitive avoidance have been hypothesized to contribute to the etiology of intrusive phenomena such as worry or obsessions, the evidence does not support such a prominent or direct role. Rather, Rassin and colleagues suggest that cognitive avoidance may stem from other underlying causes of intrusive thoughts, and may then enhance the perceived threat of these intrusive thoughts and further perpetuate maladaptive responses to the threat, such as worry. Two such processes that affect worry and that may lead to cognitive avoidance in GAD are negative beliefs about worry or thoughts and the fear of anxiety.

Both negative beliefs about worry and the fear of anxiety have been implicated in the development and maintenance of generalized anxiety disorder. Wells (1995, 1999, 2002) has suggested that negative beliefs about worry in particular play a prominent role in the development of GAD. Specifically, Wells has proposed that while positive beliefs about worry contribute to nonclinical levels of worry about common issues (type 1 worries), subsequent negative appraisals of these worries as uncontrollable and dangerous lead to meta- or type 2 worry. This type 2 worry prevents complete processing of type 1 worries, resulting in further meta-worry which then contributes to the development of excessive levels of worry as seen in generalized anxiety disorder. Wells and Carter (1999) have demonstrated empirical support for this theory, and in particular found that meta-worry predicted excessive generalized worry after controlling for the frequency of other types of worry (e.g. social and health worries) and trait anxiety. Similarly, preliminary findings of our research team have found that negative beliefs about worry are more prominent in high worriers as opposed to low worriers (Holowka, Dugas, Francis, & Laugesen, 2000). Further, Wells and Carter (2001) found that negative beliefs

about worry, and not positive beliefs about worry, distinguished a group of patients with GAD from panic disorder, social phobia, depression, and nonpatient groups.

Subsequent examinations of the relationship between meta-cognitive beliefs about worry, worry, and anxiety have found moderate support for Wells' meta-cognitive theory. Ruscio and Borkovec (2004) found that individuals diagnosed with GAD as compared to individuals with matched levels of worry not meeting diagnostic criteria for GAD were more likely to appraise their worry as more harmful, as more uncontrollable, and as more likely to lead to negative consequences if not controlled. Ruscio and Borkovec (2004) therefore concluded that it is the heightened negative appraisals of worry and not the experience of worry that distinguishes clinical worriers, though they noted that it remains unclear whether negative beliefs about worry are a cause or consequence of worry symptoms. Subsequently, in a 6-month longitudinal study of high worriers, Ruscio and Borkovec (2003) found that negative beliefs about the uncontrollability of worry and corresponding danger at time points both before and after each assessment correlated with current GAD diagnostic status, though this association was found over shorter time periods only. General negative beliefs about worry (including beliefs about superstition, punishment, and responsibility for thoughts) were also found to precede a diagnosis of GAD over short time spans. While these results are preliminary, they provide some support for Wells' theory but suggest that the influence of negative beliefs occurs mainly during brief time intervals.

In a further test of Wells' meta-cognitive theory, Davis and Valentiner (2000) found that negative beliefs about the uncontrollability of worry and corresponding danger, in conjunction with anxiety symptoms, formed a discriminant function that

correctly classified 80% of GAD worriers, anxious nonworriers, and nonanxious individuals. David and Valentiner noted, however, that while these results were consistent with meta-cognitive theory, negative beliefs about worry failed to predict additional variance in anxiety symptoms after controlling for either trait worry or trait anxiety. As such, David and Valentiner speculated that while meta-cognitive theory does enhance our current understanding of worry and anxiety, it may not provide a comprehensive model of worry. Rather, these authors proposed that the relationship between meta-cognitive beliefs and other worry-related processes should be investigated more closely. In particular, Davis and Valentiner have suggested that negative beliefs about worry may constitute a form of “worry sensitivity” similar to anxiety sensitivity, that may lead to higher levels of meta-worry. Consistent with this idea that negative beliefs about worry may influence other worry processes, (Purdon, 1999) has suggested that beliefs about the importance of controlling thoughts may lead to the use of cognitive avoidance strategies. Both these hypotheses are in fact reflections of Wells’ (1995) theory, but highlight the need to investigate these relationships in more depth. Similarly, Rassin and colleagues (2000) have speculated that cognitive avoidance, such as thought suppression, could either be the result of or lead to the development of meta-cognitive beliefs about the usefulness of cognitive avoidance. Further, Rassin and colleagues suggest that these inter-related processes may also interact with depressive and anxious mood states, and note that these relationships should be investigated further.

The fear of anxiety, defined as the tendency to experience anxiety as threatening and to fear losing control over the experience of anxiety (Williams, Chambless, & Ahrens, 1997), could likewise be implicated in engendering the use of cognitive

avoidance strategies. The fear of fear and of emotions in general (including the fear of depression, anger, and positive affect) has been investigated mainly with regard to panic disorder, where it has been found to predict anxiety and the fear of bodily sensations induced during physical challenge exercises (Williams et al, 1997), even when controlling for the effects of trait and state anxiety (Berg, Shapiro, Chambless, & Ahrens, 1998). With regard to worry, Roemer, Salters, Raffa, and Orsillo (2005) found that the fear of anxiety significantly predicted worry scores and GAD symptom severity in a nonclinical sample, with the fear of depression also showing unique associations with GAD and the fear of positive emotions predicting additional variance in worry. Only the fear of anxiety, however, predicted unique variance in worry and GAD symptom severity when accounting for the effects of worry and the fear of other emotions. Roemer and colleagues (2005) further examined the relationship between the fear of fear and experiential avoidance in a clinical sample. Both the fear of anxiety and experiential avoidance were found to be present at higher levels among individuals meeting GAD diagnostic criteria compared to nonclinical participants. Most notably, however, Roemer and colleagues found that the fear of fear and experiential avoidance were significantly correlated in this clinical population.

Similarly, anxiety sensitivity, namely the fear of anxiety, anxiety-related symptoms, and physiological symptoms in particular, has been investigated across the anxiety disorders, though less specifically in worry. The expectancy model of fear proposed by Reiss and colleagues (Reiss, 1991; Reiss & McNally, 1985) suggests that fear is partly determined by a sensitivity to the experience of anxiety, in addition to being a response to perceived threat. Anxiety sensitivity has been implicated most notably in panic

disorder, where it has been shown to predict future panic attacks even when controlling for a history of panic and trait anxiety (see for example, Schmidt, Lerew, & Jackson, 1999). The effect of anxiety sensitivity has also been implicated in health anxiety (Otto, Demopulos, McLean, Pollack, & Fava, 1998) and depression (Otto, Pollack, Fava, Uccello & Rosebaum 1995). Elevated levels of anxiety sensitivity, compared to nonclinical participants, have also been found in other anxiety disorders patients, including individuals diagnosed with post-traumatic stress disorder, specific phobias, obsessive-compulsive disorder, and GAD, though these levels were less than has been observed in panic disorder populations (Taylor, Koch, & McNally, 1992).

While the relationship between anxiety sensitivity and cognitive avoidance has not been closely examined, some preliminary research findings in the areas of anxiety and depression suggest this possibility. For instance, there is some evidence to suggest that anxiety sensitivity, and particularly the fear of cognitive dyscontrol, contributes to rumination among individuals with depressed mood, as rumination (which may constitute a form of cognitive avoidance coping which impedes emotional processing; see Boelen, van den Bout, J., & van den Hout, 2003; Wells, 2004) was found to mediate the relationship between anxiety sensitivity and depression (Cox, Enns, & Taylor, 2001). Further, in the area of anxiety, a subscale of the Anxiety Sensitivity Index (Peterson & Reiss, 1987) measuring fears of mental incapacitation was found to predict emotional avoidance, even after controlling for trait anxiety (Zvolensky & Forsyth, 2002). Finally, Wegner and Zanakos (1994) found significant correlations between their measure of thought suppression and anxiety sensitivity. The possible role of anxiety sensitivity in

contributing to cognitive avoidance has not, however, been investigated with respect to worry.

The potential relevance of the fear of fear in worry has been advanced by Turk, Heimberg, Luterek, Mennin, and Fresco (2005), who have proposed an emotion dysregulation theory of GAD. These researchers have noted that the increased verbal content of worries, the reduced autonomic activation that accompanies worries, and the resulting impaired emotional processing associated with worry suggest that GAD may be best explained from an emotion dysregulation perspective (Mennin, Heimberg, Turk, & Fresco, 2002; Turk et al., 2005). The possible role of emotion dysregulation in GAD was therefore investigated in a study comparing individuals with GAD and social anxiety disorder (Turk et al., 2005). Turk and colleagues found that the emotion regulation deficits that were specific to GAD, as compared to social anxiety disorder, included a tendency to experience emotions more intensely, to pay more attention to emotions, and to show a greater fear of depression (both groups also showed a greater fear of anxiety than did the nonclinical participants). Further, within the GAD group, the heightened emotional intensity was significantly correlated with worry, as was the fear of these emotions, suggesting that individuals with GAD are motivated to use worry as a means of avoiding these intense emotional experiences. A discriminant function incorporating these and other emotion dysregulation variables was found to classify correctly 59% of GAD participants, with the GAD group being differentiated from the social phobia group by the greater impulse strength of their emotions and increased attentiveness to their emotions. The fear of anxiety, the fear of depression, and difficulty identifying emotions discriminated both anxiety groups from nonclinical participants. Therefore, it appears



that individuals with GAD do show a distinct pattern of emotion dysregulation, a pattern which was further found to contribute to a decreased ability to repair negative moods states and an increased fear of losing control over these negative, intense emotions (Turk et al., 2005). While the fear of these intense emotions has been shown to contribute to the use of worry as an avoidance strategy (Turk et al., 2005), the possibility that these negative appraisals of emotion may be contributing to other cognitive avoidance strategies has not been directly examined.

The purpose of this study was to examine the relationship between negative beliefs about worry, the fear of anxiety, cognitive avoidance, and worry. First, we sought to examine the relative contribution of negative beliefs about worry, the fear of anxiety, and cognitive avoidance to the prediction of worry. In addition, we were interested in exploring the relationship between these process variables and two different types of worry, excessive generalized worry and catastrophic worry. Excessive, uncontrollable worry about a broad number of topics has been investigated in depth, and this type of worry is specified as the main feature of generalized anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association [APA], 2000). Research has also recently begun to examine the concept of catastrophic worry, namely the tendency to worry about negative and extreme possible outcomes to feared situations. Preliminary findings suggest that catastrophic worry may be more strongly related to the processes involved in clinical worry. Buhr, Bakerman, and Dugas (2004), for instance, found that intolerance of uncertainty, an important and specific process involved in GAD (see Dugas, Gagnon, & Ladouceur, 1998; Dugas et al., 2005; Ladouceur et al., 1999), correlated more highly with catastrophic worry. In the

present study, measures of cognitive avoidance, negative beliefs about worry, and fear of anxiety were compared in terms of their relative correlations with excessive generalized worry and catastrophic worry. Secondly, we hypothesized that both negative beliefs about worry and the fear of anxiety would make significant and unique contributions to cognitive avoidance.

## Method

### *Participants and Procedure*

Two hundred and fifty-nine ( $N=259$ ) students (67.1% female) at Concordia University in Montreal, Canada, participated in the study on a volunteer basis. Students were recruited from undergraduate, non-psychology courses, where they were asked to participate in class. Letters requesting permission to conduct a 20-minute in-class testing session were sent to professors within the university. The primary investigator or a research assistant then attended the class, briefly described the study, and invited students to participate. Interested students completed a demographic information form and a questionnaire package; students choosing not to participate were instructed to leave their package blank and submit them along with the rest of class to ensure confidentiality. At the end of the class, all students received a debriefing form explaining the purpose of the study in more detail and providing references for further reading.

### *Measures*

*Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger & Borkovec, 1990)*. The PSWQ is a 16-item measure of the frequency and intensity of excessive, generalized worry. The PSWQ has demonstrated excellent internal consistency ( $\alpha = .86$  to  $.95$ ) and test-retest reliability ( $r = .92$  over 8 to 10 weeks,  $r = .74$  to  $.93$  over 4 weeks)

(Meyer et al., 1990; Molina & Borkovec, 1994) and has evidenced good convergent, divergent, and discriminant validity in both clinical and nonclinical populations (Brown, Antony, & Barlow, 1992; Meyer et al., 1990; Molina & Borkovec, 1994). While recent factor analyses of the PSWQ point to the presence of a second method factor composed of the five reverse-scored items (Brown, 2003; Hazlett-Stevens, Ullman, & Craske, 2004), the PSWQ is thought to measure a unifactorial construct.

*Catastrophic Worrying Questionnaire (CWQ; Belzer & D’Zurilla, 1999).* The CWQ consists of 10 items and measures catastrophic worry as opposed to generalized worry. The CWQ has demonstrated good internal consistency ( $\alpha = .90$ ), good stability over time ( $r = .76$  for a 4-week interval), and appears to be unifactorial (Belzer & D’Zurilla, 1999). The CWQ has demonstrated evidence of convergent validity with other measures of worry (namely, the PSWQ), measures of depression and anxiety, and worry-related process measures (Belzer & D’Zurilla, 1999). In a recent investigation comparing the PSWQ and CWQ in a clinical setting, the CWQ was found to be more highly correlated with intolerance of uncertainty, a central process involved in GAD (Buhr et al., 2004). The PSWQ, however, was found to be more sensitive to between-group differences when comparing individuals meeting full DSM-IV diagnostic criteria for GAD, individuals with only the somatic symptoms of GAD, and nonanxious participants (Buhr et al., 2004).

*Cognitive Avoidance Questionnaire (CAQ; Gosselin et al., 2002).* The English translation (Sexton & Dugas, 2005) of the Questionnaire d’évitement cognitif (QEC; Gosselin et al., 2002; Langlois et al., 1996) was used as a measure of cognitive avoidance strategies. The CAQ consists of 25 items which assess the use of five cognitive avoidance

strategies, namely Thought Substitution, Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression. The original French QEC demonstrated high internal consistency ( $\alpha = .95$  for the total scale) and test-re-test reliability ( $r = .81$  over a 4-week interval; Gosselin et al., 2002). An exploratory factor analysis was consistent with the five-subscale structure in both adult and adolescent populations (Gosselin et al., 2002). The QEC has also shown evidence of convergent and criterion-related validity (Gosselin et al., 2002) and of good clinical sensitivity (Dugas et al., 2004). Similarly, the English translation has demonstrated good to excellent internal consistency of the scales and subscales ( $\alpha = .95$  for the total scale), good to very good stability over 4 to 6 weeks (test-retest reliability  $r = .85$  for the total scale), evidence of convergent validity with measures of worry, thought suppression, and information-avoidant coping in controllable situations, and evidence of divergent validity with adaptive forms of information-seeking. A confirmatory factor analysis of the CAQ showed good support for the five subscales, though the overall goodness-of-fit was lower than conventional standards (Sexton & Dugas, 2005).

*Consequences of Worrying Scale – Negative Consequences Subscale (COWS; Davey, Tallis & Capuzzo, 1996).* The Negative Consequences subscale from the COWS is comprised of 17 items assessing negative beliefs about worry. The Negative Consequences scale contains three subscales which measure negative beliefs that Worrying Disrupts Effective Performance, Worrying Exaggerates the Problem, and Worrying Causes Emotional Discomfort. Factor analyses have supported the overall two-factor structure of the COWS, which corresponds with the Negative Consequences and Positive Consequences scales (Davey et al., 1996). Separate factor analysis of the Negative

Consequences subscale (COWS-N) found a three-factor solution supporting the three-subscale structure (Davey et al., 1996). The COWS-N subscales have demonstrated good internal consistency ( $\alpha = .87$  for Worrying Disrupts Effective Performance,  $\alpha = .74$  for Worrying Exaggerates the Problem, and  $\alpha = .82$  for Worrying Causes Emotional Discomfort; Davey et al., 1996). The COWS Negative Consequences scale has also shown evidence of convergent validity, demonstrating positive correlations with trait anxiety, depression, anxiety symptoms, worry, problem-solving, and emotion-focused coping, and negative correlations with task-oriented and avoidance coping (Davey et al., 1996).

*Meta-Cognitions Questionnaire – Negative Beliefs Subscales (MCQ; Cartwright-Hatton & Wells, 1997).* The MCQ is composed of five subscales measuring beliefs about worry and intrusive thoughts. Davis and Valentiner (2000) have noted, however, that the subscales are fairly distinct and show different incremental validity when predicting worry and anxiety-related processes. Davis and Valentiner suggest that hypotheses regarding meta-cognitive beliefs should therefore be tested at the subscale level. In the current study, the two negative beliefs about worry subscales, namely the Negative Beliefs About the Uncontrollability of Thoughts and Corresponding Danger subscale (or Beliefs About Uncontrollability and Danger; MCQ-UD) and the Negative Beliefs About Thoughts in General, including Themes of Superstition, Punishment, and Responsibility subscale (or General Negative Beliefs; MCQ-SPR), were combined and used as a 29-item measure of negative beliefs about worry (MCQ-N).

Generally, the MCQ has shown evidence of good to excellent test-retest reliability (as regards the MCQ-N,  $r = .89$  for the Beliefs About Uncontrollability and Danger scale,

$r = .76$  for the General Negative Beliefs scale over a 5-week interval; Cartwright-Hatton & Wells, 1997). The internal consistency of the Negative Beliefs scales was also good, with the Beliefs About Uncontrollability and Danger scale showing an  $\alpha = .89$  and the General Negative Beliefs scale showing  $\alpha = .74$  (Cartwright-Hatton & Wells, 1997). Factor analyses of the MCQ have found the five-factor structure (the two Negative Beliefs scales, Positive Beliefs, Cognitive Self-Confidence, and Cognitive Self-Consciousness) to be relatively stable (Cartwright-Hatton & Wells, 1997). The MCQ has also shown evidence of both convergent and discriminant validity. Both negative beliefs subscales, the MCQ-UD and MCQ-SPR, distinguished GAD and OCD groups from a group of nonclinical participants, and the MCQ-UD subscale distinguished OCD and GAD groups from a group of other emotional disorder participants (Cartwright-Hatton & Wells, 1997). Further, the MCQ-UD and MCQ-SPR subscales showed positive correlations with trait anxiety, social, health, and meta-worry, obsessive-compulsive checking, and a lack of control over mental activities (Cartwright-Hatton & Wells, 1997).

*Affective Control Scale – Fear of Anxiety Subscale (ACS; Williams, Chambless, & Ahrens, 1997).* The ACS is a 42-item measure of the fear of emotional reactions and the fear of a lack of control over emotions. The ACS consists of four subscales, namely the fear of anxiety, fear of depression, fear of anger, and fear of positive affect. The Fear of Anxiety subscale (ACS-anx), which consists of 13 items, measures the tendency to perceive anxiety as threatening (Williams et al., 1997). The ACS has shown good to excellent internal consistency,  $\alpha = .94$  for the total scale and ranging from  $\alpha = .72$  to  $\alpha = .91$  for the subscales (Williams et al., 1997). The Fear of Anxiety subscale showed very good internal consistency with  $\alpha = .89$ . Test-retest reliability for the total scale was acceptable ( $r$

= .78; Williams et al., 1997). Finally, the ACS has shown evidence of convergent and divergent validity, as it has demonstrated strong negative correlations with the Emotional Control Questionnaire, shown positive correlations with both state and trait anxiety, and predicted fear of bodily sensation and anxiety in a laboratory noise control task and body sensation-inducing exercise (Berg, Shapiro, Chambless, & Ahrens, 1998; Williams et al., 1997).

*Anxiety Sensitivity Index Revised (ASI-R; Taylor & Cox, 1998a)*. The ASI-R contains 36 items measuring the fear of anxiety and anxiety-related symptoms, and in particular negative perceptions of the physiological symptoms of anxiety. The ASI-R is composed of six subscales assessing negative interpretations of cardiac symptoms of anxiety, fear of respiratory symptoms, fear of gastrointestinal symptoms, fear of publicly observable anxiety reactions, fear of dissociative and neurological symptoms, and fear of cognitive dyscontrol. The ASI-R is a revision of the 16-item original ASI (Peterson & Reiss, 1987) designed to expand upon the lower-order factors. The ASI-R has shown evidence of good to excellent internal consistency, ranging from  $\alpha = .80$  to  $\alpha = .91$  across the subscales (Taylor & Cox, 1998b). In terms of convergent validity, the ASI-R was found to correlate positively with measures of trait anxiety (Taylor & Cox, 1998a), anxiety symptoms, and depression (Taylor & Cox, 1998b). The ASI-R also distinguished between pre- and post-treatment panic disorder groups, between a panic disorder group and a group of participants with other anxiety disorders, and between a panic group and a group of nonanxious participants (Taylor & Cox, 1998b). Factor analyses of the ASI-R revealed four lower-order factors, fear of respiratory symptoms, fear of cognitive dyscontrol, fear of gastrointestinal symptoms, and fear of cardiac symptoms, which all

loaded on a higher-order factor while also explaining unique proportions of the variability (Taylor & Cox, 1998a). Only the total score was used in the present study.

## Results

### *Preliminary Analyses*

*Data screening and outlier analysis.* All measures were screened for multivariate outliers, univariate outliers, and distribution skew. To assess for multivariate outliers, all measures were entered into a multiple regression predicting an arbitrary numerical subject code, and Mahalanobis distance was computed. A chi-square cut-off of  $p < .01$  was used as the criterion for multivariate outliers. Twelve multivariate outliers were identified and removed from the dataset.

To identify univariate outliers, z-score distributions were computed for each variable. All data points falling either 3.29 standard deviations above or below the mean were considered outliers (Tabachnick & Fidell, 2001). No univariate outliers for the total scale scores remained after the multivariate outliers were removed from the dataset.

Finally, descriptive statistics were computed to identify non-normally distributed measures. All total scale scores were within skew tolerances (i.e.,  $\text{skew}/\text{SE} > |5|$  given an  $N > 100$ ), with the exception of the ASI-R (skew = +1.18). The CAQ Thought Substitution and Transformation of Images into Thoughts subscales were both positively skewed (skew = +0.99 and skew = +0.86, respectively). The MCQ-N General Negative Beliefs subscale (the MCQ-SPR) was also positively skewed (skew = +0.85). Given the limited range of subscale scores, however, distribution skew was not corrected in the various subscales. Further, given that clinical measures were being used with a nonclinical sample, some degree of positive skew was expected. We therefore opted not



to correct for skew in the scales and subscales so that the data would remain representative of the population sampled.

#### *Correlations Between Study Measures*

Means and standard deviations of the study measures are presented in Table 1. To examine the relationship between negative beliefs about worry, the fear of anxiety, cognitive avoidance, and worry, correlations were computed between all process measures and worry as measured by both the PSWQ and CWQ (see Table 2). Correlations were also computed between these process and symptom measures and both age and gender (female gender coded as 0, male gender coded as 1). To examine further the relationship between negative beliefs about worry, the fear of anxiety, and specific types of cognitive avoidance, correlations were computed between the study measures and the five CAQ subscales (see Table 3). All five types of cognitive avoidance strategies, namely Thought Substitution, Transformation of Images into Thoughts, Distraction, Avoidance of Threatening Stimuli, and Thought Suppression, were significantly correlated with the fear of anxiety (the ASI-R and the ACS-anx), negative beliefs about worry (the COWS-N and the MCQ-N), and with worry (measured by both the PSWQ and CWQ).

#### *Comparison of Measures of Worry*

To compare the relationship between the worry-related process measures and catastrophic worry as opposed to excessive generalized worry, correlations between the study measures and both the PSWQ and CWQ were compared using the Fisher Z-test of correlated correlation coefficients (see Meng, Rosenthal, & Rubin, 1992). The CAQ total and subscale scores, the MCQ-N, and the ACI-R showed significantly higher correlations

with the CWQ as compared to the PSWQ (see Table 4), suggesting that these processes may play more of a role in catastrophic worry as opposed to excessive generalized worry.

#### *Regression Analyses Predicting Worry*

To investigate further the relationship between the study measures and worry, separate regressions were computed predicting excessive generalized worry as measured by the PSWQ and catastrophic worry as measured by the CWQ (see Tables 4 and 5, respectively). In both regressions, gender (female gender coded as 0, male gender coded as 1) and age were entered on the first step, followed by the measures of negative beliefs about worry, the fear of anxiety, and cognitive avoidance on the second step. In the prediction of the PSWQ, the COWS-N, MCQ-N, and ACS-anx were found to make unique contributions to the prediction of excessive and uncontrollable generalized worry. Conversely, when these measures were entered in the prediction of catastrophic worry, the CAQ total score in addition to the COWS-N, MCQ-N, and ACS-anx made significant unique contributions to the prediction of the CWQ. Cognitive avoidance may therefore be more highly involved in the development or maintenance of catastrophic worry compared to generalized worry.

#### *Regression Analyses Predicting Cognitive Avoidance*

To investigate the relationship between negative beliefs about worry, the fear of anxiety, and cognitive avoidance, hierarchical multiple regressions were conducted predicting cognitive avoidance as measured by the CAQ. The regression analyses were performed twice, once with the two measures of negative beliefs about worry entered into the equation before the measures of fear of the anxiety, and then with these same sets of variables entered in the reverse order. In both analyses, demographic variables were

entered on the first step. In the first regression (see Table 6), the two negative beliefs about worry measures, namely the COWS-N and the MCQ-N, were entered on the second step. Measures of the fear of anxiety, the ACS Anxiety subscale and the ASI-R, were entered on the third step. Both the MCQ-N and the COWS-N significantly contributed to the prediction of cognitive avoidance on the second step ( $\Delta R^2 = .42, p < .001$ ). Overall, the measures of fear of anxiety entered on the third step of the regression further contributed significantly to the prediction of cognitive avoidance, though the effect size was small ( $\Delta R^2 = .04, p < .001$ ). Only the ASI-R, however, made a significant, unique contribution to the prediction of the CAQ ( $\beta = .25, p < .001$ ). The ACS Fear of Anxiety subscale did not significantly predict cognitive avoidance when controlling for the MCQ-N, COWS-N, and ASI-R ( $\beta = -.02, p > .05$ ). The ACS Anxiety subscale measures the perceived need to control anxiety while the ASI-R measures negative beliefs about the physiological symptoms of anxiety. These findings suggest that it is the fear of anxiety symptoms (anxiety sensitivity), rather than the fear of losing control over one's anxious reactions, that predicts additional variance in the use of cognitive avoidance strategies after accounting for the effects of negative beliefs about worry.

In the second regression, the ACS Anxiety subscale and the ASI-R were entered on the second step, followed by the COWS-N and the MCQ-N on the third step (see Table 7). In this analysis, both the ACS Anxiety subscale and the ASI-R significantly predicted cognitive avoidance ( $\Delta R^2 = .33, p < .001$ ). On the third step of the regression, both the COWS-N ( $\beta = .37, p < .001$ ) and MCQ-N ( $\beta = .16, p < .05$ ) made unique contributions to the prediction of the CAQ.

### Discussion

The purpose of this study was to examine the relationships of negative beliefs about worry, the fear of anxiety, and cognitive avoidance with each other and with worry. Further, this study sought to compare the relationship of these process measures with two different measures of worry. The PSWQ measures worry as defined by the DSM (APA, 2000), specifically excessive and uncontrollable generalized worry, or worry that is related to any number of topics. Conversely, the CWQ was designed to measure catastrophic worry, the tendency to worry about extreme negative outcomes to feared events. While both excessive generalized worry and catastrophic worry were found to correlate significantly with all study measures, the CWQ in particular was more highly related to cognitive avoidance as measured by the CAQ, to negative beliefs about thoughts as measured by the MCQ-N, and to anxiety sensitivity or the fear of anxiety and related symptoms as measured by the ASI-R. Given the particular negative beliefs measured by the MCQ-N, the high correlation with the CWQ is not unexpected. Specifically, the MCQ-N assesses the belief that, among other things, worry is uncontrollable and therefore dangerous. Catastrophic worry is defined as worry related to “extreme and negative outcome expectancies which represent a threat to well-being” (Belzer & D’Zurilla, 1999). This worry about extreme negative outcomes, which is often accompanied by an overestimation of the probability that these outcomes may occur (Vasey & Borkovec, 1992), is likely to be experienced as particularly distressing. Individuals prone to worry about extreme negative outcomes may be more intent on controlling such worries and may fear the consequences of not controlling these worries more acutely than do individuals with generalized worry. That negative beliefs about the

uncontrollability of worry were found to correlate more strongly with catastrophic worry is consistent with this conception of catastrophic worry as measuring more threatening worry, and worry that is perhaps less controllable. For instance, the CWQ includes items such as, “When I begin to worry, I find that one worry leads to a worse worry and that leads to an even worse worry and so on,” and “When something bad happens, I often worry that it is going to lead to something even worse.” Similarly, the CWQ compared to the PSWQ was found to be more highly correlated with the ASI-R, which measures negative beliefs about the physiological symptoms of anxiety but also includes subscales measuring the fear of cognitive dyscontrol. The finding that catastrophic worry as opposed to generalized worry was also more highly correlated with cognitive avoidance than with generalized worry might further suggest that the fear of losing control over more distressing catastrophic worries plays an important role in eliciting cognitive avoidance strategies.

The higher correlation of these process measures with catastrophic worry is also consistent with Buhr and colleagues’ (2004) finding that intolerance of uncertainty, a process involved in GAD (see Dugas, Marchand, & Ladouceur, 1998; Ladouceur, et al., 1999), is more highly related to catastrophic worry than to excessive generalized worry. The finding that GAD-related processes are more highly correlated with catastrophic worry suggests that catastrophic worry may be more relevant in pathological worry, or may possibly be a distinguishing feature of GAD worry. While past research has suggested that clinical and nonclinical worries differ primarily in frequency and uncontrollability (Craske, Rapee, Jackel, & Barlow, 1989), nonetheless, there may be a qualitative as well as a quantitative distinction between clinical and nonclinical worry.

With regard to content, though GAD patients have been shown to worry about many of the same themes as those with nonclinical worries, GAD patients do show a tendency to worry more about minor issues (Roemer, Molina, & Borkovec, 1997) and show higher levels of worry about remote future events (Dugas et al., 1998). Wells' meta-cognitive theory of GAD (1999, 2002) also proposes that pathological worry is distinguished from normal worry by the presence of meta-worry or type 2 worry, i.e. worry about the negative consequences of the act of worrying. Similarly, the phenomenon of catastrophic worry, or worry about extreme outcome expectancies, may be a distinguishing feature of worry among GAD patients as opposed to worry in nonclinical populations. This possible qualitative distinction between normal and clinical or possibly catastrophic worry would be consistent with Ruscio and Borkovec's (2004) findings that meta-cognitive beliefs about worry distinguished GAD worriers from matched high worriers not meeting GAD diagnostic criteria. These same meta-cognitive beliefs were found to relate more highly to catastrophic worry in the present study. Further research employing the CWQ in clinical populations is needed to examine this distinction between excessive generalized worry and catastrophic worry.

The results of this study suggest that both negative beliefs about worry and negative beliefs about anxiety predict cognitive avoidance. Negative beliefs about worry, as measured by either the COWS-N or the MCQ-N, were a strong predictor of cognitive avoidance as measured by the CAQ. In addition, anxiety sensitivity as measured by the ASI-R predicted variance in cognitive avoidance that was not accounted for by the beliefs about worry construct. The fear of anxiety as measured by the ACS Anxiety subscale did not, however, contribute to the prediction of the CAQ after accounting for the effects of

negative beliefs about worry on cognitive avoidance. Nonetheless, it would appear that both the subjective discomfort of the somatic symptoms of anxiety and negative beliefs about worry, including the beliefs that worry is uncontrollable and therefore dangerous, that it disrupts performance, exaggerates problem-solving, and causes emotional discomfort, predict the use of cognitive avoidance strategies to avoid threatening thoughts, images, or stimuli.

In terms of the fear of anxiety, the ASI-R in particular appears to be a strong predictor of cognitive avoidance. Given that one of the proposed functions of worry is to suppress autonomic physiological arousal (for example, see Borkovec, Lyonfields, Wisner, & Deihl, 1993), the negative beliefs about worry construct likely does not capture negative beliefs about the somatic symptoms of anxiety that may be contributing to cognitive avoidance. Consistent with this hypothesis, the ASI-R, with its emphasis on perceived consequences of the physiological symptoms of anxiety, was found to predict additional variance in the CAQ not accounted for by the MCQ-N or the COWS-N.

The results of this study are consistent with both meta-cognitive and emotion dysregulation theories of GAD. Wells' (1995; 1999; 2001) meta-cognitive theory of GAD suggests that negative beliefs about worry in particular led to excessive and uncontrollable worry. On the other hand, Turk and colleagues (2005) have noted that a propensity to experience emotions with heightened intensity, accompanied by a more pronounced fear of losing control over these emotions and other emotion regulation deficits, may explain the cognitive avoidant function of worry proposed by Borkovec and colleagues (see for example, Borkovec, Ray, & Stöber, 1998). The results of this study further support the idea that negative beliefs about worry and the fear of anxiety are

important processes in the development of excessive generalized worry, while furthering our understanding of the cognitive avoidance processes involved.

This study has several limitations. First, the results of this study are based solely on correlational data and therefore no causal conclusions may be drawn. The direction of the hypotheses tested was based on current theories of GAD (for example, Borkovec, Ray, & Stöber, 1998; Turk et al., 2005) proposing that worry is a form of cognitive avoidance employed to avoid difficult emotional experiences, or that negative beliefs about worry result in a perceived need to control or avoid worry (Wells, 1995, 1999, 2001). These models of worry have raised the possibility that other forms of avoidance may be used in response to these negative experiences or appraisals. The significant correlation of cognitive avoidance with negative beliefs about worry and somatic anxiety, however, does not establish either the directionality or causal nature of these relationships. It may be the case that the use of cognitive avoidance strategies fosters the belief that the thoughts or worries being avoided are harmful. Roemer and Borkovec (1994), for instance, have suggested that suppression of a thought may lead to the perception of that thought as negative, and that subsequently the thought will become associated with negative emotional arousal. Further, Rachman (1982) has suggested that thoughts that are associated with a negative emotion are more likely to be appraised as intrusive. Roemer and Borkovec propose that this sets up a negative self-perpetuating cycle whereby thought suppression leads to an association of the thought with negative emotion, which causes further thoughts associated with this negative emotion to be perceived as intrusive, and finally leads to further attempts to suppress these thoughts that have been perceived as intrusive. Further, given that the use of cognitive avoidance



strategies tends to be unsuccessful in suppressing or avoiding the feared thought (Purdon, 1999; Rassin et al., 2000), it may also be the case that this experience of failing to avoid threatening thoughts results in negative beliefs about the cognitive avoidance processes themselves. Further research examining the time sequence of these phenomena, perhaps by time series analyses or prospective studies, is needed. These relationships should also be examined among adolescent populations, as there is research to suggest that cognitive avoidance may play a particularly important role in the development of generalized anxiety disorder and worry in adolescence (Gosselin et al., 2000).

Secondly, this study was limited by the use of a nonclinical sample. While the symptoms of GAD and other emotional disorders are hypothesized to exist on a continuum, and there is evidence to suggest that it is mainly the frequency and controllability of worry rather than the nature and content of worries that differs between clinical and nonclinical populations (see for example, Craske et al., 1989), some worry-related processes may be relevant only at high levels of worry and may thus be more appropriately studied in clinical populations. For the most part, however, past research findings regarding worry-related processes conducted in nonclinical populations have been found to apply to clinical populations as well. Nonetheless, future research should examine the relationship between negative beliefs about worry, the fear of anxiety, and cognitive avoidance in individuals with GAD to determine if the relationships observed in this study generalize to a clinical population.

Thirdly, while the results of this study provide preliminary evidence for the hypothesis that negative beliefs about worry and anxiety contribute to the use of cognitive avoidance strategies to avoid worry and intrusive thoughts, the relationship

between these phenomena and worry has yet to be examined fully. Specifically, it is not clear whether, given the preliminary evidence that negative beliefs predict cognitive avoidance, this relationship accounts for the correlations observed between cognitive avoidance and worry. Therefore, further research, and possibly mediational analyses examining the relationship between these processes and worry, is needed to clarify these relationships. Future research is also needed to establish the direction of these associations and to explore the possible causal nature of these relationships.

It also remains to be seen to what extent negative belief about worry and the fear of anxiety symptoms continue to predict additional variance in worry, independent of the contribution of cognitive avoidance. Our preliminary regression analyses suggest that negative beliefs about worry and intrusive thoughts and the fear of losing control over one's anxiety predict unique variance in worry. Our analyses suggest further that cognitive avoidance predicts additional variance in catastrophic worry. More rigorous investigations are needed to confirm these findings. Nonetheless, this study provides preliminary evidence that negative beliefs about worry and anxiety symptoms contribute to the use of cognitive avoidance strategies in generalized anxiety disorder.

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## Appendix A

**Consent Form to Participate in Research**

This is to state that I, \_\_\_\_\_, agree to participate in a program of research conducted by Kathryn Sexton from the Anxiety Disorders Laboratory under the supervision of Dr. Michel Dugas, both of whom may be reached at 848-2424 Ext. 2229.

**A. PURPOSE**

I have been informed that the purpose of this research is to investigate different aspects of worry. Specifically, this research will look at the relationship between beliefs about worry, anxiety, and emotion and cognitive avoidance in worry.

**B. PROCEDURE**

I have been informed that the study involves the following procedures: I will be asked to sign a consent form, and fill out a general information sheet. Then, I will be asked to complete 8 questionnaires: one measuring worry frequency; another measuring catastrophic worry; a third measuring negative beliefs about worry; a fourth measuring thoughts about worry; a fifth measuring fear of emotions; a sixth measuring the fear of anxiety symptoms; a seventh measuring thought suppression; and an eighth measuring avoidance strategies. These questionnaires should take approximately 20 minutes to complete. There is no deception in this experiment and I will not be required to do any task other than those described above. My name will only appear on the consent form, and code numbers alone will be used to label the questionnaires. The signed consent form will not be kept with my responses to the questionnaires; all these documents will be kept under lock and key. I understand that my participation in the experiment, and the information I provide, are strictly confidential.

**CONDITIONS OF PARTICIPATION:**

- I understand that I am free to decline to participate in the experiment without negative consequences.
- I understand that I am free to withdraw my consent and discontinue my participation at any time without negative consequences.
- I understand that my participation in this study is confidential (i.e. the researcher will know, but will not disclose my identity).
- I understand that the data from this study may be published.
- I understand the purpose of this study and know that there is no hidden motive of which I have not been fully informed.

I HAVE CURRENTLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND AGREE TO PARTICIPATE IN THIS STUDY.

NAME (please print) \_\_\_\_\_  
 SIGNATURE \_\_\_\_\_  
 WITNESS SIGNATURE \_\_\_\_\_  
 DATE \_\_\_\_\_

**If you are interested in participating in future studies at our lab, please check off the box below and provide your telephone number.**

Yes, I would like to participate in future studies. Please contact me at:  
**TELEPHONE NUMBER:** \_\_\_\_\_

No, I do not wish to participate in future studies.

## Appendix B

## Cognitive Avoidance Questionnaire

People react differently to certain types of thoughts. Using the following scale, please indicate to what extent each of the following statements is typical of the way that you respond to certain thoughts. Please circle the appropriate number (1 to 5).

	Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
1. There are things that I would rather not think about. ....	1	2	3	4	5
2. I avoid certain situations that lead me to pay attention to things I don't want to think about. ....	1	2	3	4	5
3. I replace threatening mental images with things I say to myself in my mind. ....	1	2	3	4	5
4. I think about things that concern me as if they were occurring to someone else. ....	1	2	3	4	5
5. I have thoughts that I try to avoid. ...	1	2	3	4	5
6. I try not to think about the most upsetting aspects of some situations so as not to be too afraid. ....	1	2	3	4	5
7. I sometimes avoid objects that can trigger upsetting thoughts. ....	1	2	3	4	5
8. I distract myself to avoid thinking about certain disturbing subjects. ...	1	2	3	4	5
9. I avoid people who make me think about things that I do not want to think about. ....	1	2	3	4	5
10. I often do things to distract myself from my thoughts. ....	1	2	3	4	5

		Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
11.	I think about trivial details so as not to think about important subjects that worry me. .... 1	1	2	3	4	5
12.	Sometimes I throw myself into an activity so as not to think about certain things. .... 1	1	2	3	4	5
13.	To avoid thinking about subjects that upset me, I force myself to think about something else. .... 1	1	2	3	4	5
14.	There are things I try not to think about. .... 1	1	2	3	4	5
15.	I keep saying things to myself in my head to avoid visualizing scenarios (a series of mental images) that frighten me. .... 1	1	2	3	4	5
16.	Sometimes I avoid places that make me think about things I would prefer not to think about. .... 1	1	2	3	4	5
17.	I think about past events so as not to think about future events that make me feel insecure. .... 1	1	2	3	4	5
18.	I avoid actions that remind me of things I do not want to think about. 1	1	2	3	4	5
19.	When I have mental images that are upsetting, I say things to myself in my head to replace the images. .... 1	1	2	3	4	5
20.	I think about many little things so as not to think about more important matters. .... 1	1	2	3	4	5
21.	Sometimes I keep myself occupied just to prevent thoughts from popping up in my mind. .... 1	1	2	3	4	5

		Not at all typical	A little typical	Somewhat typical	Very typical	Completely typical
22.	I avoid situations that involve people who make me think about unpleasant things. ....1		2	3	4	5
23.	Rather than having images of upsetting events form in my mind, I try to describe the events using an internal monologue (things that I say to myself in my head). ....1		2	3	4	5
24.	I push away the mental images related to a threatening situation by trying to describe the situation using an internal monologue. ....1		2	3	4	5
25.	I think about things that are worrying other people rather than thinking about my own worries. ....1		2	3	4	5

Sexton, K. A., & Dugas, M. J. (2005). The Cognitive Avoidance Questionnaire: Validation of the English Translation. Unpublished Master's thesis, Concordia University, Montreal, Quebec, Canada.

## Appendix C

## Consequences of Worrying Scale - Negative Consequences subscale

Please indicate, by circling the appropriate number (1 to 5), how much you think each of the following statements describes you when you worry.

Not at all   A little   Moderately   Quite a bit   A lot

- |     |  |   |   |   |   |   |
|-----|--|---|---|---|---|---|
| 1.  | Worrying distorts the problem I have and so I am unable to solve it. ....                            | 1 | 2 | 3 | 4 | 5 |
| 2.  | Worrying makes me depressed and therefore makes it harder to concentrate and get on with things. ..  | 1 | 2 | 3 | 4 | 5 |
| 3.  | When I worry it stops me from taking decisive action. ....   | 1 | 2 | 3 | 4 | 5 |
| 4.  | Worrying weakens me by affecting my levels of energy in response to those events that worry me. .... | 1 | 2 | 3 | 4 | 5 |
| 5.  | Worrying makes me tense and irritable. ....  | 1 | 2 | 3 | 4 | 5 |
| 6.  | Worry causes me stress. ....   | 1 | 2 | 3 | 4 | 5 |
| 7.  | Worrying stops me from dealing with certain situations. ....   | 1 | 2 | 3 | 4 | 5 |
| 8.  | Worrying makes me irrational. ....   | 1 | 2 | 3 | 4 | 5 |
| 9.  | Worrying gets me worked up. ....   | 1 | 2 | 3 | 4 | 5 |
| 10. | Deep down I know I do not need to worry that much but I can't help it. ....                          | 1 | 2 | 3 | 4 | 5 |
| 11. | Worrying increases my anxiety and so decreases my performance. ..                                    | 1 | 2 | 3 | 4 | 5 |
| 12. | Problems are magnified when I dwell on them. ....  | 1 | 2 | 3 | 4 | 5 |



		Not at all	A little	Moderately	Quite a bit	A lot
13.	Worrying increases my anxiety. ...	1	2	3	4	5
14.	Worrying stops me from thinking straight. ....	1	2	3	4	5
15.	Worry makes me focus on the wrong things. ....	1	2	3	4	5
16.	I become paranoid when I worry. ...	1	2	3	4	5
17.	Worrying gives me a pessimistic and fatalistic outlook. ....	1	2	3	4	5

Davey, G.C. L., Tallis, F., & Capuzzo, N. (1996). Beliefs about the Consequences of Worrying. *Cognitive Therapy and Research*, 20, 499-520.

## Appendix D

## Meta-Cognitions Questionnaire - Negative Beliefs subscales

This questionnaire is concerned with beliefs people have about their thinking. Listed below are a number of beliefs that people have expressed. Please read each item and indicate how much you generally agree with it by circling the appropriate number. Please respond to all of the items, there are no right or wrong answers.

		Do not agree	Agree slightly	Agree moderately	Agree very much
1.	Worrying is dangerous for me. ....	1	2	3	4
2.	I could make myself sick with worrying. ...	1	2	3	4
3.	If I did not control a worrying thought, and then it happened, it would be my fault. ....	1	2	3	4
4.	If I let my worrying thoughts get out of control, they will end up controlling me. ...	1	2	3	4
5.	My worrying thoughts persist, no matter how I try to stop them. ....	1	2	3	4
6.	I cannot ignore my worrying thoughts. ....	1	2	3	4
7.	I should be in control of my thoughts all of the time. ....	1	2	3	4
8.	I will be punished for not controlling certain thoughts. ....	1	2	3	4
9.	My worrying could make me go mad. ....	1	2	3	4
10.	If I do not stop my worrying thoughts, they could come true. ....	1	2	3	4
11.	My worrying puts my body under a lot of stress. ....	1	2	3	4
12.	Not being able to control my thoughts is a sign of weakness. ....	1	2	3	4
13.	I find it difficult to control my thoughts. ...	1	2	3	4

		Do not Agree agree slightly	Agree moderately	Agree very much	
14.	Worrying thoughts enter my head against my will. ....	1	2	3	4
15.	If I could not control my thoughts I would go crazy. ....	1	2	3	4
16.	When I start worrying, I cannot stop. ....	1	2	3	4
17.	Some thoughts will always need to be controlled. ....	1	2	3	4
18.	I could be punished for not having certain thoughts. ....	1	2	3	4
19.	My thoughts interfere with my concentration. ....	1	2	3	4
20.	It is alright to let my thoughts roam free. ....	1	2	3	4
21.	I worry about my thoughts. ....	1	2	3	4
22.	Worry can stop me from seeing a situation clearly. ....	1	2	3	4
23.	My worrying thoughts are uncontrollable. ....	1	2	3	4
24.	It is bad to think certain thoughts. ....	1	2	3	4
25.	If I do not control my thoughts, I may end up embarrassing myself. ....	1	2	3	4
26.	My worrying thoughts appear automatically. ....	1	2	3	4
27.	If I could not control my thoughts, I would not be able to function. ....	1	2	3	4
28.	If a bad thing happens which I have not worried about, I feel responsible. ....	1	2	3	4
29.	I would be a stronger person if I could worry less. ....	1	2	3	4

Cartwright-Hatton, S., & Wells, A. (1997). Beliefs about worry and intrusions: The Meta-Cognitions Questionnaire and its correlates. *Journal of Anxiety Disorders, 11*, 279-296.

## Appendix E

## Affective Control Scale

Please rate the extent of your agreement with each of the statements below by circling the appropriate number (1 to 7) beside each statement.

	1	2	3	4	5	6	7		
	Very strongly disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Very strongly agree		
1. I am concerned that I will say things I'll regret when I get angry. ....	1			2	3	4	5	6	7
2. I can get too carried away when I am really happy. ....	1			2	3	4	5	6	7
3. Depression could really take me over, so it is important to fight off sad feelings. ....	1			2	3	4	5	6	7
4. If I get depressed, I am quite sure that I'll bounce right back. ....	1			2	3	4	5	6	7
5. I get so rattled when I am nervous that I cannot think clearly. ....	1			2	3	4	5	6	7
6. Being filled with joy sounds great, but I am concerned that I could lose control over my actions if I get too excited. ....	1			2	3	4	5	6	7
7. It scares me when I feel "shaky" (trembling). ....	1			2	3	4	5	6	7
8. I am afraid that I will hurt someone if I get really furious. ....	1			2	3	4	5	6	7
9. I feel comfortable that I can control my level of anxiety. ....	1			2	3	4	5	6	7
10. Having an orgasm is scary for me because I am afraid of losing control. ....	1			2	3	4	5	6	7

	1	2	3	4	5	6	7		
	Very strongly disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Very strongly agree		
11. If people were to find out how angry I sometimes feel, the consequences might be very bad. ....	1			2	3	4	5	6	7
12. When I feel good, I let myself go and enjoy it to the fullest. ....	1			2	3	4	5	6	7
13. I am afraid that I could go into a depression that would wipe me out. ..	1			2	3	4	5	6	7
14. When I feel really happy, I go overboard, so I don't like getting overly ecstatic. ....	1			2	3	4	5	6	7
15. When I get nervous, I think that I am going to go crazy. ....	1			2	3	4	5	6	7
16. I feel very comfortable in expressing angry feelings. ....	1			2	3	4	5	6	7
17. I am able to prevent myself from becoming overly anxious. ....	1			2	3	4	5	6	7
18. No matter how happy I become, I keep my feet firmly on the ground. ....	1			2	3	4	5	6	7
19. I am afraid I might try to hurt myself if I get too depressed. ....	1			2	3	4	5	6	7
20. It scares me when I am nervous. ....	1			2	3	4	5	6	7
21. Being nervous isn't pleasant, but I can handle it. ....	1			2	3	4	5	6	7
22. I love feeling excited - it's a great feeling. ....	1			2	3	4	5	6	7
23. I worry about losing self-control when I am on cloud nine. ....	1			2	3	4	5	6	7

	1 Very strongly disagree	2 Strongly disagree	3 Disagree	4 Neutral	5 Agree	6 Strongly agree	7 Very strongly agree
24.	There is nothing I can do to stop anxiety once it has started. .... 1 2 3 4 5 6 7						
25.	When I start feeling "down", I think I might let the sadness go too far. .... 1 2 3 4 5 6 7						
26.	Once I get nervous, I think that my anxiety might get out of hand. .... 1 2 3 4 5 6 7						
27.	Being depressed is not so bad because I know it will soon pass. .... 1 2 3 4 5 6 7						
28.	I would be embarrassed to death if I lost my temper in front of other people. .... 1 2 3 4 5 6 7						
29.	When I get "the blues", I worry that they will pull me down too far. .... 1 2 3 4 5 6 7						
30.	When I get angry, I don't particularly worry about losing my temper. .... 1 2 3 4 5 6 7						
31.	Whether I am happy or not, my self-control stays about the same. ... 1 2 3 4 5 6 7						
32.	When I get really excited about something, I worry that my enthusiasm will get out of hand. .... 1 2 3 4 5 6 7						
33.	When I get nervous, I feel as if I am going to scream. .... 1 2 3 4 5 6 7						
34.	I get nervous about being angry because I am afraid I will go too far, and I'll regret it later. .... 1 2 3 4 5 6 7						
35.	I am afraid that I will babble or talk funny when I am nervous. .... 1 2 3 4 5 6 7						

	1	2	3	4	5	6	7		
	Very strongly disagree	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Very strongly agree		
36. Getting really ecstatic about something is a problem for me because sometimes being too happy clouds my judgment. ....	1			2	3	4	5	6	7
37. Depression is scary to me - I am afraid that I could get depressed and never recover. ....	1			2	3	4	5	6	7
38. I don't really mind feeling nervous; I know it's just a passing thing. ....	1			2	3	4	5	6	7
39. I am afraid that letting myself feel Really angry about something could lead me into an unending rage. ....	1			2	3	4	5	6	7
40. When I get nervous, I am afraid that I will act foolish. ....	1			2	3	4	5	6	7
41. I am afraid that I'll do something dumb if I get carried away with my happiness. ....	1			2	3	4	5	6	7
42. I think my judgment suffers when I get really happy. ....	1			2	3	4	5	6	7

Williams, K. E., Chambless, D. L., & Ahrens, A. (1997). Are emotions frightening? An extension of the fear of fear construct. *Behaviour Research and Therapy*, 35, 239-248.

## Appendix F

## Anxiety Sensitivity Index Revised

Please circle the number that best corresponds to how much you agree with each item. If any of the items concern something that is not part of your experience (for example, "It scares me when I feel shaky" for someone who has never trembled or felt shaky) answer on the basis of who you expect you think you might feel if you had such an experience. Otherwise, answer all items on the basis of your own experience. Be careful to circle only one number for each item and please answer all items.

		Very little	A little	Some	Much	Very much
1.	It is important for me not to appear nervous. ....	0	1	2	3	4
2.	When I cannot keep my mind on a task, I worry that I might be going crazy. ....	0	1	2	3	4
3.	It scares me when I feel "shaky" (trembling). ....	0	1	2	3	4
4.	It scares me when I feel faint. ....	0	1	2	3	4
5.	It scares me when my heart beats rapidly. ..	0	1	2	3	4
6.	It scares me when I am nauseous. ....	0	1	2	3	4
7.	When I notice that my heart is beating rapidly, I worry that I might have a heart attack. ....	0	1	2	3	4
8.	It scares me when I become short of breath. ....	0	1	2	3	4
9.	When my stomach is upset, I worry that I might be seriously ill. ....	0	1	2	3	4
10.	It scares me when I am unable to keep my mind on a task. ....	0	1	2	3	4
11.	When my head is pounding, I worry I could have a stroke. ....	0	1	2	3	4



		Very little	A little	Some	Much	Very much
12.	When I tremble in the presence of others, I fear what people might think of me. ....0	1	2	3	4	
13.	When I feel like I'm not getting enough air, I get scared that I might suffocate. ....0	1	2	3	4	
14.	When I get diarrhea, I worry that I might have something wrong with me. ....0	1	2	3	4	
15.	When my chest feels tight, I get scared that I won't be able to breathe properly. ....0	1	2	3	4	
16.	When my breathing becomes irregular, I fear that something bad will happen. ....0	1	2	3	4	
17.	It frightens me when my surroundings seem strange or unreal. ....0	1	2	3	4	
18.	Smothering sensations scare me. ....0	1	2	3	4	
19.	When I feel pain in my chest, I worry that I'm going to have a heart attack. ....0	1	2	3	4	
20.	I believe it would be awful to vomit in public. ....0	1	2	3	4	
21.	It scares me when my body feels strange or different in some way. ....0	1	2	3	4	
22.	I worry that other people will notice my anxiety. ....0	1	2	3	4	
23.	When I feel "spacey" or spaced out I worry that I may be mentally ill. ....0	1	2	3	4	
24.	It scares me when I blush in front of people. ....0	1	2	3	4	
25.	When I feel a strong pain in my stomach, I worry it could be cancer. ....0	1	2	3	4	
26.	When I have trouble swallowing, I worry that I could choke. ....0	1	2	3	4	

		Very little	A little	Some	Much	Very much
27.	When I notice my heart skipping a beat, I worry that there is something seriously wrong with me. ....0	1	2	3	4	
28.	It scares me when I feel tingling or prickling sensations in my hands. ....0	1	2	3	4	
29.	When I feel dizzy, I worry there is something wrong with my brain. ....0	1	2	3	4	
30.	When I begin to sweat in a social situation, I fear people will think negatively of me. ....0	1	2	3	4	
31.	When my thoughts seem to speed up, I worry that I might be going crazy. ....0	1	2	3	4	
32.	When my throat feels tight, I worry that I could choke to death. ....0	1	2	3	4	
33.	When my face feels numb, I worry that I might be having a stroke. ....0	1	2	3	4	
34.	When I have trouble thinking clearly, I worry that there is something wrong with me. ....0	1	2	3	4	
35.	I think it would be horrible for me to faint in public. ....0	1	2	3	4	
36.	When my mind goes blank, I worry there is something terribly wrong with me. ....0	1	2	3	4	

Taylor, S., & Cox, B. J. (1998). An expanded Anxiety Sensitivity Index: Evidence for a hierarchic structure in a clinical sample. *Journal of Anxiety Disorders, 12*, 463-483.

## Appendix G

## Penn State Worry Questionnaire

Please circle a number (1 to 5) that best describes how typical or characteristic each item is of you.

		Not at all typical	Somewhat typical	Very typical		
1.	If I don't have enough time to do everything, I don't worry about it. ....	1	2	3	4	5
2.	My worries overwhelm me. ....	1	2	3	4	5
3.	I don't tend to worry about things. ....	1	2	3	4	5
4.	Many situations make me worry. ....	1	2	3	4	5
5.	I know I shouldn't worry about things but I just can't help it. ....	1	2	3	4	5
6.	When I'm under pressure, I worry a lot. ....	1	2	3	4	5
7.	I am always worrying about something. ....	1	2	3	4	5
8.	I find it easy to dismiss worrisome thoughts.	1	2	3	4	5
9.	As soon as I finish one task, I start to worry about everything else I have to do. ...	1	2	3	4	5
10.	I never worry about anything. ....	1	2	3	4	5
11.	When there is nothing more that I can do about a concern, I don't worry about it anymore. ....	1	2	3	4	5
12.	I've been a worrier all my life. ....	1	2	3	4	5
13.	I notice that I have been worrying about things. ....	1	2	3	4	5
14.	Once I start worrying, I can't stop. ....	1	2	3	4	5
15.	I worry all the time. ....	1	2	3	4	5
16.	I worry about projects until they are all done.	1	2	3	4	5

Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487-495.

## Appendix H

## Catastrophic Worrying Questionnaire

The statements below describe what a person might think and feel when they worry about something in their lives. Please read each statement very carefully and then circle the number from the scale below that best describes how typical or characteristic the statement is of you when you worry.

		Not at all typical		Somewhat typical		Very typical
1.	When I begin to worry, I find that one worry leads to a worse worry and that leads to an even worse worry and so on. ...	1	2	3	4	5
2.	When I worry, I often feel afraid that something horrible is going to happen. ....	1	2	3	4	5
3.	The things that I worry about happening to me or my family are much more dreadful than the things that other people worry about. ...	1	2	3	4	5
4.	When I worry about something, I often think of the worst possible outcome. ....	1	2	3	4	5
5.	I often worry about a number of horrible things that could happen to me or my loved ones. ....	1	2	3	4	5
6.	I avoid certain situations because I worry that something terrible will happen. ....	1	2	3	4	5
7.	I often worry that something I do will have terrible consequences. ....	1	2	3	4	5
8.	When something bad happens, I often worry that it is going to lead to something even worse. ....	1	2	3	4	5
9.	Sometimes when I worry, I think of many terrible things that could happen. ....	1	2	3	4	5
10.	When I worry about something, I usually think that it will get much worse rather than better. ....	1	2	3	4	5

Belzer, K. D., & D'Zurilla, T. J. (1999, November). *The Catastrophic Worrying Questionnaire: Development and Psychometric Properties*. Poster session presented at the 33rd Annual Convention of the Association for Advancement of Behavior Therapy, Toronto, ON, Canada.

## Appendix I

## Debriefing Form

**An Investigation of the Processes Leading to Cognitive Avoidance in Worry**

The purpose of this research was to examine the relationship between beliefs about worry, anxiety, and emotion and cognitive avoidance in worry. The study was purely a questionnaire-based study which included measures assessing worry frequency, catastrophic worry, negative beliefs about worry, thoughts about worry, fear of emotions, the fear of anxiety symptoms, thought suppression, and avoidance strategies. Using these measures, this study examined whether negative beliefs about worry, fear of anxiety, or fear of emotion contribute directly to cognitive avoidance and to worry. In particular, this study sought to determine which of these constructs is the most important contributor to cognitive avoidance. The study also examined whether negative beliefs about worry, fear of anxiety, fear of emotion, and cognitive avoidance contribute more greatly to catastrophic worry as opposed to the frequency and extent of worry in general.

The results of this study have several possible advantages for treatment. First, by better understanding the relationship between negative beliefs about worry, fear of anxiety, fear of emotion, and their relationships to cognitive avoidance, we may be better able to reduce cognitive avoidance, which is itself a maintaining factor in worry and generalized anxiety disorder. Second, by identifying whether it is a fear of worry, fear of anxiety, or a fear of emotion in general that is most important in worry, we will be better able to tailor our treatment strategies to these fears. Finally, this study has the potential to further clarify differences in the processes leading to catastrophic or clinical worry as opposed to normal worry. By increasing our understanding of what factors contribute to clinical worry, we may become more proficient at targeting these processes in treatment or at preventing the development of catastrophic worry.

This research was conducted by Kathryn Sexton from the Anxiety Disorders Laboratory, under the supervision of Dr. Michel Dugas. If you have any questions or concerns, we can be reached at:

The Anxiety Disorders Laboratory  
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L-SP-319.00  
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Website: <http://www-psychology.concordia.ca/fac/dugas/>

If you have any concerns regarding the way in which this study was conducted or if you have any questions regarding the ethics of this research, please contact the Psychology Department Ethics Committee, chaired by Dr. Adam Radomsky, whose office is located in L-PY-135.4.

If you have any further interest in this subject, we have provided the following references for your information:

- Dugas, M. J., Gagnon, F., Ladouceur, R., & Freeston, M. H. (1998). Generalized anxiety disorder: a preliminary test of a conceptual model. *Behaviour Research and Therapy, 36*, 215-226.
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Table 1

Means and Standard Deviations for Study Measures ( $N = 259$ ).

Variable	<i>M</i>	<i>SD</i>
CAQ-Total	55.12	18.37
CAQ-Subst	9.13	3.68
CAQ-Trans	9.71	4.17
CAQ-Distr	12.25	4.56
CAQ-Avoid	10.88	4.53
CAQ-Supp	13.19	4.77
PSWQ	46.53	13.37
CWQ <sup>a</sup>	22.57	9.20
COWS-N	43.86	14.95
MCQ-N	54.79	14.39
ACS-anx	42.87	11.91
ACI-R	29.23	21.12

*Note.* CAQ-Total = Cognitive Avoidance Questionnaire total score; CAQ-Subst = Thought Substitution subscale; CAQ-Trans = Transformation of Images into Thoughts subscale; CAQ-Distr = Distraction subscale; CAQ-Avoid = Avoidance of Threatening Stimuli subscale; CAQ-Supp = Thought Suppression subscale; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup>  $N = 258$ .





*Note.* CAQ = Cognitive Avoidance Questionnaire; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup>  $N = 257$ . Female gender coded as 0, male gender coded as 1. <sup>b</sup>  $N = 255$ .

\*  $p < .05$ ; \*\*\*  $p < .001$ .

Table 3

CAQ Subscale Correlations with the Study Measures, Gender, and Age ( $N = 258$ ).

Variable	Substitution	Transform	Distraction	Avoidance	Suppression
CAQ-Total	.81***	.81***	.88***	.86***	.85***
PSWQ	.33***	.29***	.40***	.29***	.33***
CWQ	.52***	.43***	.55***	.49***	.54***
COWS-N	.50***	.41***	.61***	.52***	.55***
MCQ-N	.53***	.43***	.51***	.47***	.49***
ACS-anx	.44***	.32***	.45***	.41***	.35***
ASI-R	.51***	.43***	.43***	.51***	.43***
Gender <sup>a</sup>	-.04	-.05	-.07	.00	-.02
Age <sup>b</sup>	-.15*	-.02	-.12	-.04	-.15*

*Note.* CAQ-Total = Cognitive Avoidance Questionnaire total score; Substitution = CAQ Thought Substitution subscale; Transform = CAQ Transformation of Images into Thought subscale; Distraction = CAQ Distraction subscale; Avoidance = CAQ Avoidance of Threatening Stimuli subscale; Suppression = CAQ Thought Suppression subscale; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup>  $N = 257$ . Female gender coded as 0, male gender coded as 1. <sup>b</sup>  $N = 255$ .

\*  $p < .05$ ; \*\*\*  $p < .001$ .

Table 4

Comparing Correlations of Process Variables with Measures of Worry ( $N = 258$ ).

Variable	PSWQ	CWQ	Z
CAQ-Total	.39	.60	4.74***
CAQ-Subst	.33	.52	4.03***
CAQ-Trans	.29	.43	2.77***
CAQ-Distr	.40	.55	3.34***
CAQ-Avoid	.29	.49	4.19***
CAQ-Supp	.33	.54	4.50***
COWS-N	.64	.67	.75
MCQ-N	.63	.72	2.65***
ACS-anx	.63	.59	-1.20
ACI-R	.47	.60	2.84***

*Note.* All zero-order correlations significant at  $p < .001$ . Correlations were compared using Fisher's Z test of correlated correlation coefficients (see Meng, Rosenthal, & Rubin, 1992). CAQ-Total = Cognitive Avoidance Questionnaire total score; CAQ-Subst = Thought Substitution subscale; CAQ-Trans = Transformation of Images into Thought subscale; CAQ-Distr = Distraction subscale; CAQ-Avoid = Avoidance of Threatening Stimuli subscale; CAQ-Supp = Thought Suppression subscale; PSWQ = Penn State Worry Questionnaire; CWQ = Catastrophic Worrying Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

\*\*\*  $p < .001$ .

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting Scores on the PSWQ (N = 255).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.02	3.12*			
Gender <sup>a</sup>			-4.45	1.79	-.16*
Age			0.00	0.16	.00
Step 2	.53	58.37***			
COWS-N			0.29	0.06	.32***
MCQ-N			0.28	0.07	.30***
ACS-anx			0.34	0.07	.23***
ASI-R			-0.01	0.04	-.02
CAQ			-0.08	0.04	-.11

*Note.* CAQ = Cognitive Avoidance Questionnaire; PSWQ = Penn State Worry Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*  $p < .05$ ; \*\*\*  $p < .001$ .

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting Scores on the CWQ (N = 254).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.03	3.69*			
Gender <sup>a</sup>			-0.97	1.23	-.05
Age			-0.28	0.11	-.16*
Step 2	.59	77.36***			
COWS-N			0.10	0.04	.16*
MCQ-N			0.25	0.04	.38***
ACS-anx			0.09	0.04	.11*
ASI-R			0.04	0.03	.10
CAQ			0.08	0.03	.16**

*Note.* CAQ = Cognitive Avoidance Questionnaire; CWQ = Catastrophic Worrying Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 7

Summary of Regression Analysis for Variables Predicting Scores on the CAQ (N = 255).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.02	1.93			
Gender <sup>a</sup>			-1.14	2.46	-.03
Age			-0.41	0.22	-.12
Step 2	.42	91.72***			
COWS-N			0.49	0.09	.40***
MCQ-N			0.38	0.09	.30***
Step 3	.04	8.07***			
ACS-anx			-0.03	0.10	-.02
ASI-R			0.22	0.06	.25***

*Note.* CAQ = Cognitive Avoidance Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*\*\*  $p < .001$ .

Table 8

Summary of Regression Analysis for Variables Predicting Scores on the CAQ (N = 255).

Variables	$\Delta R^2$	$\Delta F$	<i>B</i>	SE <i>B</i>	$\beta$
Step 1	.02	1.93			
Gender <sup>a</sup>			-1.14	2.46	-.03
Age			-0.41	0.22	-.12
Step 2	.33	63.30***			
ACS-anx			0.34	0.10	.22**
ASI-R			0.37	0.06	.42***
Step 3	.12	28.00***			
COWS-N			0.45	0.09	.37***
MCQ-N			0.21	0.10	.16*

*Note.* CAQ = Cognitive Avoidance Questionnaire; COWS-N = Consequences of Worrying Scale – Negative Consequences subscale; MCQ-N = Meta-Cognitions Questionnaire – Negative Beliefs subscales; ACS-anx = Affective Control Scale – Fear of Anxiety subscale; ASI-R = Anxiety Sensitivity Index Revised.

<sup>a</sup> Female gender coded as 0, male gender coded as 1.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .



### General Discussion

The translation and validation of the English version of the CAQ provides a means for the further investigation of the cognitive avoidance mechanisms or strategies by which threatening or worrisome thoughts are avoided in generalized anxiety disorder. Previous research has implicated thought suppression (Wegner & Zanakos, 1994), distraction (Borkovec & Roemer, 1995), self-punishment (Coles & Heimberg, 2005; Wells & Davies, 1994), and the deliberate use of verbal worry as an avoidance strategy (Borkovec & Inz, 1990; Coles & Heimberg, 2005; Wells & Davies, 1994) in the phenomenon of excessive and uncontrollable generalized worry. Research with the CAQ has demonstrated that additional strategies are involved. In the present study, worry was found to show positive correlations with thought substitution, the avoidance of threatening stimuli which evoke distressing thoughts, and the tendency to transform threatening mental imagery into verbal thoughts, as well as with thought suppression and distraction as discussed earlier.

Given the numerous and varied measures of cognitive avoidance that exist, further research is needed to compare the overlap and distinctiveness of these questionnaires and to arrive at more accurate taxonomies of the cognitive avoidance strategies assessed. For some measures, the overlap is particularly evident. In the present study, for instance, the CAQ Thought Suppression subscale showed strong positive correlations with the WBSI Thought Suppression factor, and both measures were significantly positively correlated with worry. Conversely, other similarly-named measures of cognitive avoidance strategies have shown discrepant relationships with worry-related processes. In particular, Distraction as assessed by the Thought Control Questionnaire (Wells &

Davies, 1994), was found to correlate negatively with worry, depression, and decreased life satisfaction. In the current study, however, the CAQ Distraction subscale was positively correlated with worry and worry-related processes. One possible explanation for this discrepancy is that these measures are tapping different methods of distraction. Similarly, the MBSS Blunting scale, which includes the assessment of distraction coping responses in response to uncontrollable threatening situations, correlated positively with the CAQ Distraction subscale but failed to show a significant relationship with worry. This latest finding further suggests that the same cognitive avoidance strategy may produce different effects in different circumstances. In other words, distraction may be either maladaptive or adaptive depending on the context of the situation.

The results of Study 1, which compared the CAQ with measures of dispositional coping, support the idea that the adaptiveness of coping responses is largely dependent on whether the strategy employed is tailored to the situation at hand. The importance of responding to the demands of the situation has been well documented in the coping literature. In particular, research has found support for the “goodness of fit” hypothesis which states that the adaptiveness of coping strategies depends on the fit between these strategies and the appraised controllability of the situation. For instance, Forsythe and Campas (1987) found that the use of problem-focused coping for major life events that were appraised as uncontrollable was related to increased symptomatology, whereas the use of emotion-focused coping in these uncontrollable situations led to lower levels of symptomatology. Similarly, Endler, Speer, Johnson, and Flett (2000) manipulated the level of control over a stressful situation and found that greater controllability was related to more successful situational coping, to more task-oriented coping, to less emotion-

oriented coping, and to decreased levels of anxiety. Thus, the controllability of a stressful situation has indeed been identified as a relevant factor in determining the adaptiveness of specific coping responses.

The confounding effect of controllability on the adaptiveness of information-seeking and information-avoidance coping strategies was particularly evident when comparing the overlap between the CAQ and the two measures of coping disposition employed in this study. The MBSS Monitoring and Blunting scales assess information-seeking and information-responses in uncontrollable threatening scenarios (Miller, 1987). The MCI-R Vigilance and Cognitive Avoidance subscales, however, include both controllable and uncontrollable threatening situations (Krohne et al., 2000). In the current study, the CAQ showed moderate negative correlations with the Vigilance scale from the MCI-R, and positive correlations with a subset of items from the MCI-R Cognitive Avoidance subscale assessing the use of information-avoidance in controllable situations. The CAQ was unrelated to the MCI-R Cognitive Avoidance responses in uncontrollable situations. With regard to the MBSS, the CAQ (and especially the Distraction, Transformation of Images into Thoughts, and Thought Suppression subscales) was positively correlated with the MBSS Monitoring subscale, and only the CAQ Distraction subscale was positively correlated with Blunting.

While these results were somewhat unexpected given our initial hypotheses that the CAQ would show convergent validity with information-avoidance coping styles and divergent validity with information-seeking coping styles, these findings are for the most part consistent with Krohne and colleagues (2000)'s conceptualization of the relationships between controllability and adaptive coping. Krohne and colleagues

suggest that in controllable situations, information-seeking is an adaptive response whereas the use of information-avoidance strategies is maladaptive. Conversely, in uncontrollable situations, information-seeking is no longer adaptive, particularly if the information-seeking takes the form of hypervigilance to threat cues. Correspondingly, in uncontrollable situations, information-avoidance may be an adaptive response.

To assess Krohne and colleagues' (2000) hypotheses, the current study examined correlations between measures of worry and the measures of information-seeking and information avoidance in both controllable and uncontrollable situations. Consistent with Krohne and colleagues' conceptualization, worry as measured by both the PSWQ and the CWQ was found to correlate positively with MBSS Monitoring (which is assessed in uncontrollable situations) and the MCI-R Cognitive Avoidance in controllable situations. Further, worry was unrelated to the MCI-R Cognitive Avoidance responses in uncontrollable situations. Also in accordance with Krohne and colleagues' hypotheses, both measures of worry were negatively correlated with MCI-R Vigilance in controllable situations. Worry continued to show negative correlations with MCI-R Vigilance in uncontrollable situations, though the magnitude of the correlation decreased significantly with respect to the CWQ. The MBSS Blunting scale, which assesses coping in uncontrollable situations, did not show any significant correlations. For the most part, however, the distinction between adaptive and maladaptive coping suggested by Krohne and colleagues (2000) was evident in the relationship of these measures with worry in the current study.

Considered in light of this distinction between adaptive and maladaptive coping, the CAQ, which was designed to measure maladaptive cognitive avoidance strategies

related to worry, would be expected to correlate positively with and maladaptive use of information-avoidance coping in controllable situations and show divergent validity with adaptive information-seeking in controllable situations. The results of Study 1 demonstrated this pattern of relationships. Specifically, the CAQ was positively correlated with MCI-R Cognitive Avoidance in controllable situations. The CAQ also showed strong negative correlations with MCI-R Vigilance in controllable situations. Though this negative correlation remained significant for MCI-R Vigilance in uncontrollable situations as well, the magnitude of the correlation with the CAQ was significantly lower.

Given that the MBSS assesses coping in uncontrollable situations, where Monitoring would be considered maladaptive and Blunting would be adaptive according to Krohne and colleagues' proposed distinction, it is less evident what to expect in terms of the relationship of these measures with the CAQ. Specifically, adaptive cognitive avoidance, or Blunting, may not be expected show significant correlations with the CAQ despite the apparent convergence of these constructs. It should be noted, however, that the MBSS Blunting scale did not correlate with worry in the current study, rendering it more difficult to assess the adaptiveness of the Blunting responses. The MBSS Monitoring scale did correlate positively with worry, supporting the view that these responses in uncontrollable scenarios are maladaptive. It is unclear, however, whether (maladaptive) Monitoring would be expected to correlate with the (maladaptive) cognitive avoidance strategies assessed by the CAQ given the apparent divergence of these constructs. The results of these correlational analyses found that the MBSS Blunting scale was significantly correlated with the CAQ Distraction subscale only, while

the MBSS Monitoring scale was correlated with the CAQ total score and with the Transform of Images into Thoughts, Distraction, and Thought Suppression subscales. It is unclear whether the correlation between Blunting and the CAQ Distraction merely indicates that the MBSS Blunting subscale mainly samples this particular strategy, or whether the adaptive or maladaptive value of distraction as a cognitive avoidance strategy is less straightforward. Generally, however, these findings suggest that the CAQ is mainly related to maladaptive coping strategies, including the tendency to be hypervigilant to threat-related information.

To investigate the role of cognitive avoidance in worry, Study 2 sought to evaluate the relationship of cognitive avoidance with other worry-related processes and with qualitatively different forms of worry. First, the relationships between cognitive avoidance and two distinct types of worry, excessive generalized worry and catastrophic worry, were compared. Secondly, the relative contribution of cognitive avoidance over and above that of other worry-related processes to the prediction of generalized and catastrophic worry was examined. Finally, the hypothesis that two worry-related processes in particular, the fear of anxiety and negative beliefs about worry, would predict cognitive avoidance was examined.

The five cognitive avoidance strategies measured by the CAQ were found to correlate with both generalized excessive worry and with catastrophic worry. Further, all five strategies showed stronger correlations with catastrophic worry, as did two other worry-related processes: general negative beliefs about thoughts, including the belief that the uncontrollability of thoughts poses a danger, and the fear of somatic symptoms of anxiety. These results extended Buhr and colleagues' (2004) finding that relative to

excessive generalized worry, catastrophic worry showed stronger correlations with intolerance of uncertainty, a worry-specific process (see Dugas et al., 1998; Dugas, Marchand, & Ladouceur, 2005; Ladouceur et al., 1999).

Secondly, cognitive avoidance was found to predict unique variance in catastrophic worry, though not in generalized worry, when accounting for the fear of anxiety and negative beliefs about worry. Negative beliefs about worry, negative beliefs about thoughts, and the fear of losing control over anxiety also continued to predict unique variance in both types of worry.

Finally, the hypothesis that negative appraisals of worry and of anxiety might lead to the use of cognitive avoidance strategies to avoid threatening thoughts was supported. Both measures of negative beliefs about worry, the MCQ-N and the COWS-N, made unique contributions to the prediction of cognitive avoidance. Concerning the fear of anxiety, only the ASI-R which measures negative perceptions of anxiety-related sensations (and not the fear of losing control over the experience of anxiety) made unique contributions to the prediction of cognitive avoidance. Thus, it appears that the tendency to attach negative interpretations to the two clusters of GAD symptoms (as defined by DSM-IV; APA, 2000), namely worry and the somatic symptoms of anxiety, is correlated with the tendency to employ cognitive avoidance strategies to avoid threatening thoughts. It should be noted that the correlational nature of these analyses does not establish the direction of this relationship and further research is needed to investigate whether there is a causal relationship between these processes and cognitive avoidance.

Future research should also examine these worry-related processes to determine if there are mediational effects between these processes and worry. In particular, future

research might consider the possibility that cognitive avoidance mediates the relationship between either negative beliefs about worry or the fear of anxiety and worry. Further, the relationships between negative beliefs about worry, the fear of anxiety, and cognitive avoidance found in this study should be replicated with more behavioural measures of cognitive avoidance. While the results of the present study are compelling, the CAQ has not yet been validated with behavioural indices of cognitive avoidance. Individuals' ability to accurately self-report on the cognitive avoidance strategies assessed by the CAQ should be examined before investigating the causal nature of the relationships with the fear of anxiety and negative beliefs about worry. Finally, future research should examine the effects of cognitive avoidance on information-processing. Various cognitive biases (including attentional, interpretive, and memory biases), have been identified in GAD, and an examination of the relationship between cognitive avoidance and these biases may further our understanding of the effects of cognitive avoidance on worry and anxiety.



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