PERFECTIONISM AND GENERALIZED ANXIETY DISORDER:
INVESTIGATING THE MEDIATING EFFECT OF EMOTION DYSREGULATION

by

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ABSTRACT

The present study examined the associations among perfectionism, emotion dysregulation, and GAD. Eighty participants completed self-report questionnaires assessing perfectionistic tendencies, difficulties in emotion regulation, and symptoms of GAD. The purpose of this study was to examine emotion dysregulation as a potential mediator in the relationship between perfectionism and GAD. Results indicated that general emotion dysregulation statistically mediated the relationship between the socially prescribed dimension of perfectionism and GAD. In addition, specific difficulties in emotion regulation, including deficits in acceptance of emotions, emotional clarity, impulse control, and access to effective regulation strategies, fully mediated the association between socially prescribed perfectionism and GAD symptoms. Implications for treatment and future research directions are discussed.
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Chapter 1: Introduction and Literature Review

Introduction

Emotion regulation is generally defined as a process that involves modulating different aspects of emotional processing, including how emotions direct attention, the cognitive appraisals that shape emotional experience, and the physiological consequences of emotion. Existing research shows that emotion regulation may be affected by both internal factors as well as external environment. According to Southam-Gerow & Kandell (2002), caregivers have an important influence on regulating children’s emotional states and emotion regulation develops in the context of the relationship between children and their caregivers. In addition, environmental research suggests that natural settings can promote more rapid recovery from stress than urban settings (Van den Berg, Hartig, & Staats, 2007). Even though emotion regulation by external factors is important, the present study follows the predominant focus of the literature (Gross, 2007) and thus focuses on the self-regulation of emotion.

Emotion regulation has been linked to mental health and well-being; extant research shows that the lack of effective emotional regulation skills can lead to psychological dysfunction such as eating disorders (Fairburn et al., 1995; Polivy & Herman, 1998, 2002), alcohol abuse (Sher & Grekin, 2007), and anxiety (Mennin, 2004; Mennin, Heimberg, Truck, & Fresco, 2005). Mennin and colleagues (2005) found that individuals with generalized anxiety disorder (GAD) show increased emotional intensity (i.e., having emotional reactions that occur more easily, quickly, and intensely than expected), poor understanding of emotions, and discomfort with emotional experience, which may lead them to use maladaptive coping strategies to modulate their emotions.
Another construct that has been linked to emotion regulation is perfectionism, which has been conceptualized as consisting of adaptive and maladaptive dimensions. While healthy or adaptive perfectionists tend to have high personal standards and low concerns, unhealthy or maladaptive perfectionists have high standards and high concerns. Adaptive perfectionism has been found to be linked to psychological wellbeing, satisfaction with life, and positive mood (Hill, Huelsman, & Araujo, 2010), whereas maladaptive perfectionism has been associated with various dysfunctions such as higher psychological distress (Chang, 2000; Rice, Tucker, & Desmond, 2008) and social-relational problems (Rice, Leever, Christopher, & Porter, 2006).

Rice and colleagues (2006) found that maladaptive perfectionists reported high levels of stress and poor emotional adjustment (i.e., higher levels of hopelessness and depression), which may be due to poor emotion regulation (Aldea & Rice, 2006). Researchers have suggested that differentiating between these two types of perfectionism could be helpful in identifying psychological issues that are associated with perfectionism and in targeting treatment for individuals who are negatively affected by perfectionism (Shafran, Cooper, & Fairburn, 2002; Stoeber & Otto, 2006).

Several dimensions of maladaptive perfectionism have been associated with psychological worry and anxiety (Flett, Hewitt, & Dyck, 1989; Kawanura et al., 2001; Stoeber & Joorman, 2001). For example, Frost and colleagues (1990) demonstrated that individuals exhibiting the dimensions of doubts about actions, parental expectations and parental criticism, and concern over mistakes are likely to exhibit higher levels of worry and anxiety. Rumination (i.e., self-focused thinking that involves negative appraisal of the self accompanied by negative evaluation of one’s feelings, behaviours, situations, and ability to cope) has also been found to be associated with maladaptive perfectionism. This was also confirmed in another study that
examined the relationship between perfectionism and worry. Stoeber and Joorman (2001) found significant correlations between anxiety and the Concern over Mistakes and Doubts about Actions subscales of perfectionism.

Despite the plethora of research studies on the associations between each two of the aforementioned variables (i.e., perfectionism and emotion regulation, perfectionism and GAD, and emotion regulation and GAD), no studies to date have examined the relationship among the three variables. The mediational model investigated in the current study has its basis on various models of emotional processing and emotion regulation (Gross, 1998, 2002; Kennedy-Moore & Watson, 1999). According to these models, there are different cognitive-affective mechanisms of emotional processing and regulation, which include: affect intensity, emotional awareness, emotional clarity, acceptance of emotional responses and access to emotion regulation strategies. Disturbances at different points of emotional processing and regulation may have negative influences on an individual’s well being (Gross, 1998, 2002; Kennedy-Moore & Watson, 1999).

**Literature Review**

The literature review in the present study is divided into four sections, including: (1) a review of the term emotion and its usage, (2) a brief review of the theoretical background of emotion regulation, (3) deficits in emotion regulation and how they relate to GAD, and (4) perfectionism and its relationship with both emotion regulation and GAD symptomatology.

**Emotions and their function**

Emotion has been defined as a relatively short-term, biologically based pattern of perception, experience, physiological reaction and communication in response to physical or social challenges (Keltner & Gross, 1999). Emotions serve to reduce survival-relevant problems
Emotions are conceptualized as having significant roles in different areas of human life such as survival, physical and mental health, and social relationships with others. For instance, as mechanisms for survival, emotions are used to form attachments, maintain relationships, and avoid physical threats (Ekman, 1992; Oately & Jenkins, 1992; Leavenson, 1994). Further, emotions function to coordinate competing internal and external stimuli in order to provide solutions for physical and psychological demands (Keltner & Gross, 1999).

Emotion regulation

In everyday life, humans are constantly exposed to different emotional cues, including internal sensations such as a headache, or external events such as death of a loved one. In order to deal with these triggers, people engage in some form of emotion regulation (Davidson, 1998), “to resist being carried away or “highjacked” (Goleman, 1995) by the immediate emotional impact of the situation” (Koole, 2009, p.6). Therefore, emotion regulation is a multidimensional construct that may be generally defined as a process that helps individuals modulate the experience and expression of emotions (Gross, 1998b, 2002; Kennedy-Moore & Watson, 1999). Emotion regulation has been studied as involving emotion as a behaviour regulator and emotion as a regulated phenomenon (Campos, Campos, & Barrett, 1989; Cole, Michel, & Teti, 1994) with most research emphasizing the latter (i.e., how we attempt to regulate emotion). As an example, Thompson (1994) defines emotion regulation as the “extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions especially their intensive and temporal features, to accomplish one’s goals…” (pp.27-28). In addition, Thompson (1994) suggests several ways for regulating emotion including a neurophysiological response,
attention processes, construals/attribution, access to coping resources, exposure to environment, and responses/behaviour.

Attention processes involve managing the intake of emotionally-arousing stimuli. Shifting attention between different stimuli develop early in life. According to Rothbart et al. (1992), infants between 3 and 6 months of age are able to redirect their attention from one stimulus event to another. When being in an emotionally evocative situation, young children may cover their eyes in order to remove a stimulus. This redirection of attention becomes more complex as children acquire more knowledge about emotions and the regulation of emotions. For example, they learn to use more internal attention management strategies such as thinking positively during times of distress (Band & Weisz, 1988).

Emotion regulation also occurs through altering the interpretations or construals of emotionally arousing information (Thompson, 1994). Mechanisms such as rationalization and denial are often employed to help reduce anxiety. Similar to attention processes, construals develop early in life. Children create their own interpretations of an event, which may have powerful emotional consequences. For instance, in order to deal with feelings of failure, a child may substitute a goal with a more achievable goal (Thompson, 1994).

Another form of emotion regulation involves having access to coping resources, which begins early in life. Children cope with stressful situations through a secure attachment with their caregivers. Access to interpersonal coping resources can help children manage their emotions in threatening circumstances (Thompson, 1994). Adults, too, seek external support in times of difficulty. We turn to family and friends to seek comfort when bereaved.

Initial research on emotion regulation primarily focused on explicit or strategic actions that individuals employ to modulate emotional responding (Gross, 1998a), whereas more recent
investigation has identified emotion regulation attempts that can be automatic or implicit. Explicit emotion regulation is measured by presenting the participants with stimuli under two conditions: the first condition involves instructing the participants to react naturally to stimuli (i.e., reactivity trial) and in the other condition participants are instructed to use a specific strategy to modulate their emotional responses (i.e., regulation trial). Explicit emotion is then measured by contrasting emotional responding in the two conditions. Researchers have instructed participants to use different strategies such as cognitive reappraisal (changing thoughts about the stimuli; Ochsner, Bunge, Gross, & Gabrieli, 2002), attentional control (Urry, 2010), distraction (McRae et al., 2010), realistic evaluation of the stimuli (Herwig et al., 2007), and suppression of feelings (Levesque et al., 2003). Gross and Thompson (2007) suggest that changing the response to an emotionally-arousing stimulus would be more effective if regulation occurs early on in the emotion-generative process. For instance, cognitive reappraisal, which occurs before emotional responses develop, is more effective in changing the emotional response than suppression, which is engaged after an emotional response has been generated (Gross, 1998b). In sum, the process of explicit emotion regulation is “instructed, effortful, and is carried out with considerable awareness” (Gyurak, Gross, & Etkin, 2011). In other words, when engaging in such process, individuals are aware of the stimuli that elicited their emotions as well as the emotion itself.

Implicit emotion regulation is defined as “any process that operates without the need for conscious supervision or explicit intentions, and which is aimed at modifying the quality, intensity, or duration of emotional response” (Koole & Rothermund, 2011, p.390). Implicit emotion regulation strategies include emotional conflict adaptation, affect labeling, and thorough emotion regulatory goals and values (Gyurak, Gross, & Etkin, 2011). Emotional conflict
adaptation involves unconscious regulation of emotional control, which is elicited by some stimuli. For example, Etkin and colleagues (2006) proposed a task in which participants were asked to look at photographs of facial expressions (happy or fearful) labeled either congruently or incongruently with the words “happy” or “fear”. Participants were required to ignore the words and only label the emotional expression. Despite having been provided with the instructions, participants reported no awareness of the modulation of emotional control. Emotion regulatory goals and values comprise another type of implicit emotion regulation, which “routinely runs outside of awareness” (Gyurak, Gross, Etkin, 2011). Various studies have shown that people have the tendency to routinely modulate emotions with little awareness (Schweiger-Gallo et al, 2009; Eder, 2011).

One of the models of emotion regulation is proposed by Gross (2002, 1998a), who conceptualizes emotion regulation as a multidimensional construct that refers to actions employed to modulate “which emotions we have, when we have them, and how we experience and express them”. According to Gross, emotion is a generative process and it begins when emotion-arousing stimuli are attended to and evaluated, which in turn result in response tendencies that may need to be modulated. Gross suggests that emotion regulation may occur at five points in the emotion generative process. These points include: situation selection, situation modification, attention deployment, cognitive reappraisal, and modulation of experiential, behavioural or physiological responses. Situation selection involves approaching or avoiding certain people or situations that might provoke certain emotions, whereas situation modification refers to altering a situation in order to change its emotional impact. Attention deployment refers to shifting attention to or away from something so as to change one’s emotions while cognitive reappraisal/change involves changing how one construes an emotion-arousing situation. Both
attention deployment and cognitive reappraisal are types of antecedent-focused emotion regulation strategies. In particular, these processes involve reevaluating the situation in order to change ongoing emotional experiences. On the other hand, response-focused emotion regulation strategies occur after emotion has already been activated. Response-focused emotion regulation also includes a variety of strategies such as intensifying, prolonging, or suppressing ongoing emotions.

Another model of emotion regulation, proposed by Kennedy-Moore and Watson (1999), addresses the interaction of emotional, cognitive, and social processes that are important for effective emotional processing and regulation. The authors describe “a process involved in translating ‘covert emotional experience’ to ‘overt emotional expression’ via internal cognitive-evaluative steps that are driven by affective experience” (Lecce, 2008, p. 21). The five steps of this model include: (1) a pre-reflective (i.e., preconscious) reaction to an emotion-arousing stimulus which involves automatic emotional and cognitive processing as well as physiological changes, (2) conscious perception of the response which may involve becoming aware of one’s distress, (3) labeling and interpreting the emotional response which refers to identifying internal and external cues to determine whether the response is emotional or physiological, (4) evaluating the response as acceptable which is based on one’s beliefs and goals, and (5) evaluating the response in the perceived social context.

Disturbances at various points in this model may have different consequences on an individual’s well being (Kennedy-Moore & Watson, 1999). In the first step of this model, individuals may vary in the intensity of their reactions to a stimulus. For example, an individual who has a high threshold for distress may have lower emotional reactivity than a person with low threshold for distress. In the second step, an individual might suppress an emotional experience
and thus block it from awareness, which may result in the inability to regulate negative emotions adaptively. In step three, the inability to effectively distinguish emotional experiences (e.g., feeling hurt, embarrassed, or scared) may result in maladaptive ways of coping. In the fourth step, an individual may hold a negative attitude toward expressing emotion and thus feel that it is unacceptable to express what he/she is feeling. Finally, a disruption in step five occurs due to the suppression of emotions even when there is a strong desire to express oneself (Kennedy-Moore & Watson, 1999).

Given various conceptualizations of emotion regulation, researchers (Koole, 2009; Bridges, Denham & Ganihan, 2004) have suggested the need to consolidate the definition of this concept. The lack of agreement on the conceptualization of emotion regulation has led to the development of measurements that focus on various aspects of the construct. The most widely used measures of emotion regulation have focused on one of the three general domains of: (a) cognitive problems; (b) behavioural regulation problems; or (c) the inability to recognize, label, or express intense, negative emotions. Three contemporary measures seem to reflect these domains of emotion regulation; the Toronto Alexithymia Scale-20 (TAS-20; Bagby, Taylor, & Parker, 1994), the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2002), and the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004).

The TAS-20 is a widely used instrument for assessing individuals’ ability to identify and express emotions. The construct of alexithymia is a personality dimension that refers to the difficulties with the perception, differentiation, and expression of emotions. The TAS-20 consists of three scales: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). Externally oriented thinking refers to the tendency to think
about external events so that one does not think about internal feelings. Despite its frequent use, the TAS-20 has been subject to criticisms. For instance, the measure’s significant correlation with many psychological dysfunctions, such as depression and anxiety, suggest that it may not in fact measure a different construct (Lumley, 2000). Furthermore, Leising, Tilman, and Rainer (2009) described the validity of the TAS-20 to be “questionable” (p.709).

The CERQ is based on the idea that emotion regulation through cognitions or thoughts is a necessary part of emotional experience. Cognitive emotion regulation is considered to be helpful in dealing with emotions during or after stressful events (Garnefski et al., 2001). The CERQ comprises nine cognitive emotion regulation strategies, each referring to what an individual thinks after having experienced a threatening incident. *Self-blame* involves thinking that one is to blame for having experienced a negative event while *other-blame* refers to thoughts that the environment or another person is responsible for what one has experienced. *Rumination* entails thinking about the emotions and thoughts that are associated with a negative occurrence. *Catastrophizing* involves thoughts that focus on the negativity of an experience. *Acceptance* refers to thoughts of accepting a negative experience. *Positive refocusing* entails having positive thoughts instead of thinking about stressful events. *Positive reappraisal* involves having thoughts of giving a positive meaning to negative events in terms of personal growth. *Refocus on planning* refers to thoughts about what one needs to do and what steps to take after having experienced a negative event. Lastly, *putting into perspective* refers to emphasizing the relativity when comparing a negative event with other events. Due to its primary focus on cognitive emotion regulation strategies, the CERQ does not capture how individuals use behavioural strategies to process and regulate emotions. Thus, this measure does not capture the complexity of emotion regulation and only provides limited information on how individuals regulate emotions.
Finally, the DERS is designed to assess “multidimensional concepts” of emotion regulation. More specifically, the DERS measures maladaptive emotion regulation abilities on a psychological level (e.g., non-acceptance of emotion responses, lack of clarity, and emotional awareness) as well as behavioural aspects of emotion regulation difficulty (e.g., impulse control problems). In defining emotion regulation constructs, Gratz and Roemer (2004) identify the following five key factors: (a) understanding of emotions, (b) acceptance of emotions, (c) ability to control impulsive behaviour, (d) ability to control behaviour when experiencing negative emotions, and (e) ability to modulate emotions in a context-appropriate manner and in order to meet individual goals. Unlike the TAS-20 and CERQ, the DERS places less emphasis on the use of cognitive processes in regulating emotions.

Regulation of emotions in accordance with a given context seems to be essential for wellbeing (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). It has been argued that individuals who are able to recognize, understand, and manage their emotional experiences in a specific context appear to respond effectively to difficult situations in life (Mayer, Salovey, & Caruso, 2004). Difficulties in processing and regulating emotions, however, have been found to be associated with psychological dysfunction (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Gross & John, 2003).

**Difficulties in Emotion Regulation and GAD**

Numerous studies have investigated the association between emotion dysregulation and psychological disorders (Gross, 2007). The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV; American Psychological Association, 1994) provides information on the strong relationship between deficits in emotion regulation mechanisms and the development of various mental health problems. For example, the inability to effectively
regulate emotions has been associated with psychological dysfunctions such as anxiety, depression, eating disorders, and borderline personality disorder (Martin & Dahlen, 2005; Fonagy, Gergely, Jurist, & Target, 2002; Schore, 2003; Greenberg, 2002; Kring & Bachorowski, 1999; Mennin & Farach, 2007).

Interest in the association between difficulties in emotion regulation and GAD has increased during recent years. GAD has been defined by excessive and uncontrollable worry, which in turn causes distress and maybe also functional impairment such as muscle tension, inability to focus, irritability, restlessness, sleep disturbance, and being easily fatigued (American Psychiatric Association, 2000). There are several theoretical conceptualizations of GAD, each emphasizing certain aspects of this disorder. These theories include the Avoidance Model of Worry and GAD (AMW), Intolerance of Uncertainty Model (IUM), Metacognitive Model (MCM), Acceptance-Based Model of GAD (ABM), and Emotion Dysregulation Model (EDM).

The AMW (Borkovec, 1994; Borkovec, Alcaine, & Behar, 2004) identifies worry as a cognitive avoidance response that prevents somatic and emotional activation associated with perceived future threats. This cognitive response then impedes effective emotional processing of fear that is essential for extinction of anxiety responses, therefore leading to the maintenance of worry (Newman & Llera, 2011). Furthermore, worry may be associated with avoidance of emotional experiences. In fact, individuals with GAD tend to worry about potential negative outcomes of a range of emotions and to feel discomfort with depression and anxiety (Roemer et al., 2005; Turk et al., 2005)

Intolerance of Uncertainty (IU) is defined as “the tendency to react negatively on an emotional, cognitive, and behavioural level to uncertain situations and events” (Dugas, Schwartz, &Francis, 2004; p.143). The IUM suggests that individuals who experience IU consider...
ambiguous situations with possible negative outcomes to be stressful, which may lead them to avoid such situations. These individuals will then use worry as a cognitive strategy to avoid feelings of discomfort (Newman & Llera, 2011). According to the IUM, there are two pathways that lead to the development and maintenance of GAD. IU in the first pathway is described as a schema and worry is defined as a reaction to such schema. The IU schema leads a person to ruminate over possible negative outcomes in ambiguous circumstances, which will lead to considerations of catastrophic consequences. As a result, the person may become unable to effectively solve problems and experience heightened feelings of worry. The indirect path to GAD offers other factors in the maintenance of worry in addition to IU (Dugas et al., 2004, 1998) including positive beliefs about worry, negative problem orientation, and cognitive avoidance strategies (Newman & Llera, 2011).

The MCM (Wells, 1995, 1999) identifies negative attributions about worry as the main factor in the development and maintenance of GAD. According to this model, individuals with GAD use negative beliefs about worry to cope with a stressful situation, which interferes with emotional processing. The MCM identifies two types of worry; the first type happens in events that are perceived as threatening (Wells, 2004). Individuals with GAD use worry to cope with such events. For example, an individual with GAD may perceive worry as being helpful to decrease chances of being overwhelmed by unexpected negative situations. The second type of worry, named worry about worry (Wells, 1995), occurs when an individual negatively evaluates a worry experience, such as thinking of worry as being out of control.

The ABM posits that individuals with GAD use worry as a mechanism to avoid negative outcomes and negative internal experiences. Due to their fear of uncertainty, such individuals may use predictions and avoidance of potential negative outcomes to maintain a sense of control.
However, as ignored emotional processing may bring up previously ignored and unprocessed emotions (Foa & Kozak, 1986), these individuals may experience a cycle of enhanced worry. The ABM suggests that individuals with GAD have a tendency to overly focus on potential future outcomes and to avoid internal experiences, which leads to a lack of acceptance and mindfulness (Newman & Llera, 2011).

All of these models emphasize the central importance of avoidance of internal experiences among individuals with GAD. For instance, the AMW suggests that worry assists in avoiding the emotionally arousing stimuli such as vivid images. IUM, on the other hand, proposes that worry helps individuals to avoid uncertainty. Furthermore, the MCM identifies worry as a strategy for avoiding worrying about worry whereas the EDM classifies worry as a strategy to regulate and possibly avoid emotions. Lastly, the ABM proposes that worry helps individuals to avoid unpleasant internal experiences.

Despite sharing the similarity of emphasizing avoidance in describing GAD, these models have differences. The cognitive models of GAD (i.e., MCM, IUM) focus primarily on cognitions/thoughts as the primary components that influence the development of GAD while identifying emotions and behaviours as the secondary elements. For instance, the MCM emphasizes the significance of negative beliefs about worry. The IUM, also, identifies intolerance of uncertainty as a cognitive vulnerability to worry and cognitive avoidance. Treatments that are based on cognitive models emphasize the importance of understanding core beliefs about internal experiences such as negative beliefs about worry.

In contrast to the cognitive models of GAD, emotional/behavioural models (i.e., EDM, ABM) identify emotions and behaviours as the primary components in the development of this disorder. According to the EDM, poor understanding and ineffective modulation of emotions is
the major component in the development and maintenance of GAD (Mennin, Heimberg, Turk, & Fresco, 2002). Similarly, the ABM suggests that avoidance of internal experiences leads an individual to disengage in certain behaviours. Treatments based on these models focus primarily on emotions and behaviours while placing a secondary importance on cognitions. Such treatments focus on emotion education using strategies such as emotional skills training, experiential exposure exercises, acceptance of emotions, and teaching the roles of emotions in decision making (Behar, DiMarco, Hekler, Mohlman, & Staples, 2009).

The EDM postulates that emotion dysregulation in GAD may consist of four components: “(a) heightened intensity of emotions; (b) poor understanding of emotions; (c) negative reactivity to one’s emotional state; and (d) maladaptive emotional management responses (Mennin, Holaway, Fresco, Moore, & Heimberg, 2007). Individuals who suffer from GAD have been found to show emotional responses that happen intensely and quickly (i.e., heightened intensity of emotions; Mennin, Heimberg, Truck, & Fresco, 2005). They also tend to have inadequate understanding of their emotions. Leahy (2002) found that anxiety was correlated with lack of acceptance of one’s emotions. In addition, individuals with GAD have been found to have fear of emotions such as anxiety, sadness, and anger (Mennin, Heimberg, Truck, & Fresco, 2005; Roemer, Salters, Raffa, & Orsillo, 2005; Turk et al., 2005). Finally, individuals with GAD tend to have difficulty with adaptively managing their emotions (Mennin, Heimberg, Truck, & Fresco, 2005). For instance, in response to emerging emotions, individuals with GAD tend to respond reactively, which is manifested in their attempt to gain control over the situation by trying to escape or reduce the intensity of emotional experience (Fresco, Segal, Buis, & Kennedy, 2007). Due to deficits in less elaborative emotion regulation capacities, individuals with GAD tend to engage in overly elaborative responses including worry, rumination and self-
criticism. Worry and rumination are both perseverative cognitive processes that work to alleviate stress that arises when emotional and motivational states are in conflict (Fresco, Segal, Buis, & Kennedy, 2007). Self-criticism helps to provoke perfectionistic responses, which may in turn promote inactivity (Marshall, Zuroff, McBride, and Bagby, 2008; Sturman & Mongrain, 2010). These responses are similar in that they all help to reduce emotional arousal, as they require the individual to engage in elaborative self-conscious processing. According to Fresco and colleagues (2007), overuse of these mechanisms can be problematic in that first, they require great amounts of resources (Muraven & Baumeister, 2000), and second, increasing elaboration takes one’s attention away from receiving, processing, and adaptively responding to an emotion (Schultz, Izard, Ackerman, & Youngstrom, 2001).

**Perfectionism**

Perfectionism is a personality disposition that has been characterized by excessively high standards and the tendency to engage in critical self-evaluations (Frost, Marten, Lahart & Rosenblate, 1990). Pacht (1984) describes perfection as an “undesirable” and a “debilitating” goal. He suggests that an individual’s “true beauty” and “high value” comes from his or her imperfections and that striving for perfection represents an unhealthy goal. He further argues that perfection is associated with several psychological and physical problems such as alcoholism, irritable bowel syndrome, depression, anorexia, obsessive-compulsive personality disorders, dysmorphophobia, etc. According to Pacht (1984), perfectionists tend to set standards that are unrealistically high and impossible to achieve. He also discusses that perfectionists have an “all or nothing” way of thinking, which leads them to only consider the extremes of the continuum and to disregard the middle ground. In other words, they strive to be perfect and yet they find this motive to be impossible, which leads into their perception of being a failure (Pacht, 1984).
Although perfectionism was initially believed to be a unidimensional construct (Burns, 1980; Pacht, 1984), more recent investigations define it as a multidimensional concept entailing adaptive and maladaptive forms (Macedo, Marques, & Pereira, 2014). Hamachek (1978) was the first person to suggest that perfectionism contains both positive and negative aspects. He distinguishes between normal and neurotic perfectionists in that normal perfectionists “are those who derive a very real sense of pleasure from the labours of a painstaking effort and who feel free to be less precise as the situation permits. People like this want and need approval as much as anyone else. They interpret it as an additional good feeling on top of their own and use it as encouragement to continue on and even improve their work” (p. 27). Neurotic perfectionists, on the other hand, “never seem good enough, at least in their own eyes... They are unable to feel satisfaction because in their own eyes they never seem to do things good enough to warrant that feeling” (p. 27). According to Hamachek (1978), normal perfectionists are more likely to be clear about what needs to be done and they are more emotionally charged than neurotic perfectionists. Neurotic perfectionists, on the other hand, are likely to feel “anxious, confused, and emotionally drained before a new task is even begun” (p.28).

Despite the various definitions proposed for perfectionism, a number of features have been common to most definitions. For instance, the setting of excessively high personal standards has been repeatedly emphasized as a prominent feature of perfectionism (Hamachek, 1978; Burns, 1980; Pacht, 1984). However, Frost, Marten, Lahart, and Rosenblate (1990) suggest that this feature may also be shared by people who are highly competent and therefore, the setting of high standards is not in and of itself pathological. Furthermore, Hamachek (1978) posits that the setting of high standards is pathological only when it is accompanied by tendencies for overly critical evaluations of oneself.
One of the evaluative tendencies associated with perfectionism is the high level of concern over mistakes. Hamachek (1978) suggests that this over-concern for mistakes may likely lead to a fear of failure that accompanies perfectionists’ strive for their goals. Moreover, Burns (1980) describes this over-concern to be a part of perfectionists’ dichotomous thinking style, which leads them to think that performance must be perfect or it is worthless. Thus, perfectionists may perceive any mistakes in performance as failure.

Another overly critical evaluation tendency has been proposed to be a sense of doubt about one’s performance, which is associated with Hamachek’s (1978) description of perfectionists as never seeming “to do things good enough” (p.27). Reed (1985) describes this experience as an uncertainty about an action and he suggests that perfectionists tend to be uncertain regarding when a task is complete.

A third component of perfectionism has been proposed to include placing considerable value of parental expectations and evaluations. Perfectionists have been hypothesized to have grown up in families where love and approval were conditional and so to receive this love and approval from parents they must have been perfect. In other words, any mistake might have risked rejection or loss of love from parents (Burns, 1980; Pacht, 1984; Hamachek, 1978). According to Frost, Marten, Lahart, and Rosenblate (1990), perfectionists perceive a strong link between their own self-evaluations and their parental expectations, so that if they cannot meet parental standards they would lose parental love and approval.

While adaptive perfectionists are able to derive pleasure from their high self-standards, maladaptive perfectionists “never seem to do things good enough to warrant that feeling” (Hamachek, 1978, p.27). A review by Stoeber and Otto (2006) indicates that while maladaptive perfectionists have high standards and high discrepancy between their standards and actual
efforts, adaptive perfectionists tend to “concentrate on what has been achieved rather than pondering the discrepancy between what has been achieved and what might have been achieved if everything had worked out” (p. 316).

One of the first measures of perfectionism was developed by Burns (1980), who described perfectionism as a maladaptive personality characteristic. The Burns Perfectionism Scale (BPS) is a self-report inventory that consists of 10 statements. The respondent is required to read each statement and report on a 5-point scale the degree to which he/she agrees with each statement. The BPS has shown good 2-month test-retest reliability ($r = .63$), reasonable internal consistency ($a = .70$; Hewitt & Dyck, 1986). There is also some evidence of the convergent and discriminant validity of the BPS, with a large correlation with measures of high standards and high self-expectations, and a moderate correlation with measures of depression and self-blame (Hewitt, Mittelstaedt, & Wollert, 1989). Hewitt and Dyck (1986) found evidence for the predictive validity of the BPS suggesting a high correlation between self-reported stressful life events and depressive tendencies for perfectionists but not for non-perfectionists. Despite its strength as a brief and an easy-to-use measure of perfectionism, the BPS emphasizes the maladaptive nature of this construct and does not take into account the positive features of perfectionism. In addition, it focuses on only one dimension of perfectionism and disregards the multiple dimensions offered for this construct.

Another measure of perfectionism was developed by Frost, Marten, Lahart, and Rosenblate (1990). In developing their Multidimensional Perfectionism Scale (MPS), Frost and colleagues emphasized several aspects of perfectionism that had been suggested to be critical, including high personal standards, excessive concern over mistakes, doubting of one’s
performance, the impact of parental expectations, and an overemphasis on precision, order, and organization.

Initial development of the Frost MPS involved generation of 67 statements to which participants reported their level of agreement on a 5-point scale ranging from strongly disagree to strongly agree. The items were later cut down to 35 statements that were organized into six subscales of Personal Standards (PS), Concern over Mistakes (CM), Parental Expectations (PE), Parental Criticism (PC), Doubts about Actions (DA), and Organization (O). Personal Standards involves setting high standards for oneself and placing excessive importance on them while Concern Over Mistakes refers to negative reactions to mistakes, interpreting mistakes as failure, and the perception that one will lose respect from others following failure. Parental Expectations reflects the perception that one’s parents set very high goals and Parental Criticism is the tendency to perceive that one’s parents are overly critical. Finally, Doubts about Actions, refers to one’s belief that she/he does not complete projects to satisfaction whereas Organization involves placing high importance on having things organized and in order.

A Total Perfectionism Score was calculated by adding up the subscale scores except for the Organization subscale, which showed the lowest correlation with the other subscales. Internal consistencies for these subscales ranged from .77 to .93, and large correlations were found between the total perfectionism scores and other measures of perfectionism such as the BPS (Burns, 1980; \( r = .85 \)) and the Eating Disorders Inventory-Perfectionism subscale (EDI; Garner et al., 1983; \( r = .59 \)).

Frost, Marten, Lahart, and Rosenblate (1990) provided evidence for the relationship between perfectionism and psychological dysfunctions. For instance, they reported that total perfectionism, CM, and DA moderately to largely correlate with measures of guilt (Situational
Guilt Scale; Klass, 1987), procrastination (Procrastination Assessment Scale Students; Solomon & Rothblum, 1984), and obsessive-compulsive symptoms (Maudsley Obsessive Compulsive Inventory; Rachman & Hodgson, 1980). Studies have shown elevated levels of perfectionism, CM, and DA in obsessive-compulsive individuals compared with non-compulsive individuals (Frost & Steketee, 1997; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). Other reports have shown strong correlations between the Frost MPS scales and depressive symptoms measured by the BDI. In particular, total perfectionism, DA, and CM have shown moderate to large associations with BDI scores while PS has shown a smaller correlation with the BDI (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Minarik & Ahrens, 1996). In addition, CM and DA have shown moderate to large relationships with social anxiety and social phobia (Juster et al., 1996).

Hewitt and Flett (1991b) developed another scale for measuring perfectionism, which focuses more on the interpersonal features of the construct. The authors conceptualized perfectionism into three components: self-oriented perfectionism (SOP), socially prescribed perfectionism (SPP), and other-oriented perfectionism (OOP). While SOP involves setting unrealistic expectations for oneself, SPP entails a striving for approval from others coupled with the belief that others expect perfection. OOP reflects one’s tendency to “have highly unrealistic standards for significant others, place inordinate importance on whether other people attain these standards, and reward others only if they attain these standards…The failure of significant others to meet standards should result in dissatisfaction and loss of pleasure in social relations” (Hewitt & Flett, 1991, p.425).

Socially prescribed perfectionism is described to be primarily maladaptive and has been most closely associated with the emergence of psychopathology such as depression, suicidal...
ideation, stress, and anxiety (Blankstein, Lumley, & Crawford, 2007). Self-oriented perfectionism, however, has been shown to be adaptive by some studies and maladaptive by others. For example, while Klibert, Langhinrichsen-Rohling, and Saito (2005) found SOP to be positively associated with conscientiousness, Flett, Besser, Davis, and Hewitt (2003) found that SOP was negatively related to self-actualization, tolerance for failure, and unconditional self-acceptance.

Hewitt and Flett (1991b) initially generated 122 items reflecting the three components of perfectionism that could be rated on a 7-point scale. The items were later cut down to 45 items, with 15 statements organized into each of the dimensions of SOP, OOP, and SPP. Internal consistencies (α) were shown to be .86 for SOP, .82 for OOP, and .87 for SPP. Three-month test reliabilities (r) were reported as .88 for SOP, .85 for OOP, and .75 for SSP.

Several studies have assessed the convergent and discriminant validity of the Hewitt and Flett MPS. OOP has been shown to correlate most strongly with other-directed personality characteristics such as dominance, authoritarianism, and a tendency to blame others. SPP has been found to be related to fear of negative evaluation, need for approval, and external locus of control (Flett & Hewitt, 2002).

In terms of the predictive and concurrent validity of the MPS, Hewitt and Flett (1991a) found elevated levels of SPP in samples of individuals with unipolar depression and those with anxiety disorder, compared with control participants. However, they only found that elevated SOP scores were demonstrated by participants with depression and not by those with anxiety disorder.

In a factor analysis of the Frost, Heimberg, Holt, Mattia, and Neubauer (1993) and Hewitt and Flett (1991) Multidimensional Perfectionism Scales (FMPS and HMPS, respectively), Frost
and colleagues (1993) identified two higher-order categories of perfectionism, labeled as Positive Achievement Striving and Maladaptive Evaluative Concerns. Positive Achievement Striving refers to adaptive forms of perfectionism such as Personal Standards, Organization, and self-oriented perfectionism. Conversely, Maladaptive Evaluative Concerns refers to maladaptive perfectionism, which includes Doubts about Actions, Parental Expectations, Concern over Mistakes, and socially prescribed perfectionism. Furthermore, the authors found that while self-oriented perfectionism was correlated with Personal Standards and Organization, socially prescribed perfectionism was associated with Concern over Mistakes, Parental Expectations, and Parental Criticism.

**Perfectionism and Emotion Regulation**

Maladaptive perfectionism has been found to be correlated with deficits in emotion regulation. For example, in a study on the relationship between perfectionism and emotion regulation in a sample of individuals with social phobia, Rukmini, Sudhir, and Math (2014) found associations between maladaptive dimensions of perfectionism and emotion regulation strategies. In particular, the authors found that rumination was associated with Doubts about Actions and Concern over Mistakes. Rumination is an emotional regulatory strategy that refers to “behaviours and thoughts that focus one’s attention on one’s depressive symptoms and on the implications of these symptoms” (Nolen-Hoeksema, 1991). In addition, the findings suggested that individuals who experienced Parental Criticism tended to dwell on mistakes, potentially resulting in the development and maintenance of negative affect. Higher levels of Parental Expectations, however, were found to be associated with positive reappraisal, resulting in higher regulations of emotions and a reduced likelihood of experiencing negative emotions. Cognitive reappraisal, defined as “construing a potentially emotion-eliciting situation in non-emotional
terms” (Gross, 2002, p.283), is associated with reduced negative emotion and increased wellbeing (Gross & John, 2003). Moreover, Evaluative Concerns perfectionism (ECP), defined as a socially prescribed tendency to perceive that others expect one to be perfect with additional self-evaluation regarding one’s capacity to meet those standards (Gaudreau & Thompson, 2010), has been found to be associated with higher levels of emotional suppression. Individuals with high levels of ECP tend to please people in order to gain acceptance from others (Gross & John, 2003).

**Perfectionism and GAD**

Considerable research has supported the association between maladaptive perfectionism and higher psychological distress (Chang, 2000; Rice, Tucker, & Desmond, 2008; Wei et al., 2007). Research suggests that significant positive relationships exist between different dimensions of perfectionism and pathological worry. For example, in a study of university students, Stoeben and Joormann (2001) found that maladaptive perfectionism components such as Doubts about Actions and Concern over Mistakes significantly correlated with scores on the Penn State Worry Questionnaire (PSWQ). The Maladaptive Evaluative Concerns dimension of perfectionism, including Concern Over Mistakes, Doubts About Actions, Parental Expectations, Parental Criticism, and Socially Prescribed Perfectionism, has been found to correlate significantly with trait anxiety (Flett, Hewitt, Endler, & Tassone, 1994), and social anxiety (Blankstein, Flett, Hewitt, & Eng, 1993). In a sample of college students, maladaptive perfectionism was significantly associated with social anxiety, trait anxiety and worry (Kawamura et al., 2001). Furthermore, Buhr and Dugas (2006) found that Self-Oriented Perfectionism and Socially Prescribed Perfectionism were positively related with worry on the PSWQ.
Despite the plethora of research on the relationship between perfectionism and pathological worry, little is known about the link between perfectionism and GAD. Moreover, little attention has been given to the mechanisms by which perfectionism correlates with GAD. Considering the prevalence of GAD worldwide (Baxter, Scott, Vos, & Whiteford, 2013), it is essential to uncover the pathways by which perfectionism dimensions are related to GAD.

**Purpose**

Prior research attests to the link between perfectionism and both emotion dysregulation and psychological worry, as well as to the relation between emotion dysregulation and GAD symptoms. However, the mechanism through which perfectionism and emotion dysregulation influence GAD symptomatology is not well understood. The goal of the current study is to investigate whether deficits in emotion regulation mediate the link between perfectionism and GAD symptomatology in adults. It is hoped to further explore which forms of emotion dysregulation would best explain these relations. In addition, the results of the current study may have important treatment implications since GAD has been characterized by persistent symptomatic recurrence (Borkovec & Ruscio, 2001). Understanding the role of perfectionism and emotion dysregulation in the functioning of individuals with GAD may assist in generating new forms of intervention that could be more effective in providing a consistent level of symptom reduction and functionality.

**Hypotheses**

A mediation model, conducted in four steps, is used to examine the relationships among perfectionism, emotion dysregulation, and GAD. It is hypothesized that (1) higher levels of maladaptive perfectionism would be positively related with higher levels of GAD symptomatology. In addition, (2) higher levels of perfectionism would be positively associated
with greater deficits in emotion regulation in each of the six DERS dimensions. It is further hypothesized that (3) emotion dysregulation would be positively associated with greater symptoms of GAD. Finally, it is expected that (4) emotion dysregulation would statistically mediate the relationship between perfectionism and GAD symptomatology.

Chapter 2: Method

Participants

Participants were recruited from the community. In order to be included in this study, participants were required to meet the following eligibility criteria:

1. Be 18 years or older
2. Have access to and use of the Internet
3. Be fluent in English
4. Not currently be involved in psychotherapy or on any psychotropic medications

As well, individuals who were deemed at risk or indicated an urgent need for assistance were excluded from the study and were given an appropriate referral; although at no time did this action have to be taken.

The total sample included 95 individuals, however 15 cases were excluded due to excessive missing data (>10% missing). As such the final sample consisted of 80 adults ranging in age between 18 and 65.

The sample was composed of 59 (73.8%) females, 20 (26.2%) males, and 1 person who did not specify his/her gender. Participants were primarily Caucasian (42.5%), with 27.5% being Asian, 6.3% being African American, 1.3% being Aboriginal, 2.5% not specifying their ethnicity, and 20% reporting “other” for ethnicity. With respect to education levels, 39 (48.8%) had completed a university undergraduate degree, 18 (22.5%) had completed a postgraduate
degree, 7 (8.8%) had completed college or trade school, and 3 had completed a high school
degree. In terms of marital status, 38 (47.5%) individuals were single, 22 (27.5%) were married,
17 (21.3%) were living with partner, 2 (2.5%) were divorced or separated, and 1 (1.3%)
pREFERRED not to specify. 26 of the 80 participants exceeded the clinical cutoff of 5.7 on the GAD-
Q-IV measure.

Measures

[Hewitt & Flett’s] Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett,
1991). The HMPS is a 45-item, seven-point Likert type scale (anchored by 1=Disagree to
7=Agree) designed to measure the level of pathological perfectionism along three subscales: self-
oriented perfectionism, other-oriented perfectionism, and socially prescribed perfectionism.
Higher scores are indicative of greater levels of perfectionism in each subscale. Internal
consistency of the three subscales are adequate, with Cronbach alphas of .86 for self-oriented,
.87 for socially prescribed, and .82 for other-oriented perfectionism (Hewitt & Flett, 1991). The
authors reported test-retest reliability of the MPS subscales of .88 for SOP, .75 for SPP, and .85
for OOP over a 3-month period and reported significant correlation coefficients between the
MPS subscales and various measures of personality and psychopathology (SCL-90)
demonstrating concurrent validity.

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The
DERS is a 36-item self-report measure designed to assess six clinically relevant difficulties in
emotion regulation in response to distress: nonacceptance of negative emotions (Nonacceptance),
difficulties engaging in goal-directed behavior (Goals), difficulties refraining from impulsive
behavior (Impulse), lack of awareness of emotional responses (Awareness), the belief that one
has limited access to effective emotion regulation strategies (Strategies), and lack of clarity about
the emotions that one is experiencing (Clarity). Each item is scored on a 5-point Likert scale, ranging from 1 (almost never) to 5 (almost always). Higher scores indicate greater difficulties with emotion regulation. The DERS has high internal consistency (a = .93) with Cronbach’s a > .80 for each subscale and good construct validity, with correlations among factors ranging from r = .14 to r = .63 (Gratz & Roemer, 2004).

**The Generalized Anxiety Disorder Questionnaire-IV (GAD-Q-IV).** The GAD-Q-IV (Newman et al., 2002) is a fourteen-item self-report instrument assessing symptoms reflecting DSM-IV criteria for GAD (APA, 1994). The questions reflect the presence or absence of excessive or uncontrollable worry within the last 6 months, as well as accompanying physical symptoms, such as restlessness, sleep disturbances, irritability, or muscle tension. The GAD-Q-IV can be scored for a diagnosis, with a score above 5.7 indicative of clinically significant GAD symptoms. The GAD-Q-IV has been found to have good convergent validity with a GAD diagnosis based on a diagnostic interview to discriminate between GAD and panic disorder and social phobia diagnoses and to demonstrate good test–retest reliability over a 2-week period (Newman et al., 2002).

**Demographic questionnaire.** To obtain background information, a demographic questionnaire was created and included in the survey (see Appendix A). The questionnaire inquired about age, gender, marital status, education, ethnicity, and previous treatment/medication use.

**Procedure**

**Recruitment.** Participants were recruited through advertisements placed online through Kijiji and Craigslist (Appendix B). Contact information, study details, and inclusion criteria were posted on these websites. Advertisement flyers were also distributed to psychologists,
psychiatrists, general practitioners, workplaces, community centres and universities across a city in South Western Ontario (Appendix C). In addition, a public group was created on the online social networking website Facebook in order to generate interest and spread information about the study.

The survey was administered electronically via http://fluidsurveys.com. The online survey included information and consent to participate (Appendix D), which described the purpose and risks and benefits of the study. Individuals were informed that the study is designed to investigate the relationships between perfectionism, emotion regulation/dysregulation, and anxiety symptoms. Participants were also informed that the study is strictly voluntary and confidential and that they could withdraw at any time without consequence. Participants were also provided with the contact information of the investigator and faculty supervisor. At the end of the informed consent page, participants had the option to provide their informed consent by indicating that they understood the purpose of the study and agreed to participate in the survey. Participants who agreed to participate were directed to the second page of the survey, which included background information such as age, gender, education, etc. Participants were then directed to complete a series of online questionnaires comprising the online survey. Upon completion of the survey, participants were provided a printable resource sheet (see Appendix E), which consisted of a list of emergency and community resources in case of immediate need. Lastly, participants were provided with the option to leave their email addresses to enter a draw to win a $50 Amazon.ca gift certificate.

Chapter 3: Results

Data Analysis

Preliminary Analyses. Prior to data analysis, preliminary analyses were conducted to assess if
the variables in the study were normally distributed. In order to check for normality, skewness and kurtosis values were divided by their corresponding standard error values. If the resulting value was more than two, appropriate transformations were conducted to normalize the distributions. The transformed variables were then used for subsequent analyses. Variables were also checked for missing data, univariate outliers, or any other abnormalities.

Summary scores were computed for the variables of perfectionism, difficulties in emotion dysregulation, and generalized anxiety disorder. The three subscales for perfectionism (i.e., self-oriented, other-oriented, socially prescribed) were computed by summing items comprising each subscale. The subscales were then combined to create a total score for perfectionism. This score ranges from 45 to 315. The DERS subscales (i.e., nonacceptance, impulse, awareness, strategies, clarity, goals) were computed by summing the relevant items for each subscale.

A correlation analysis was then conducted to investigate the relationship between each pair of the study variables. Next, a series of regression analyses were conducted in order to examine whether the cognitive-affective mechanisms of emotion regulation (i.e., negative affectivity, lack of emotional awareness, lack of emotional clarity, non-acceptance of emotion, and limited access to emotion regulation strategies) mediated the relationship between perfectionism and GAD symptomatology. In order to establish mediation, the four steps of the Baron and Kenny (1986) model were followed: (1) whether the independent variable (i.e., perfectionism) is correlated with the criterion variable (GAD), (2) whether the independent variable is associated with the mediator (i.e., emotion regulation), (3) whether the mediator variable affects the criterion variable after controlling for the independent variable, and (4) whether the mediator mediates the link between the independent and criterion variables.
In accordance with Baron and Kenny’s model, the existence of a significant relationship between each pair of variables was examined via linear regression analyses using SPSS 22.0. Figure 1 illustrates Baron and Kenny’s approach using the current study’s variables.

**Figure 1. Mediation Model**

In order to investigate whether the amount of mediation was statistically significant, a bootstrap approach was performed using a SPSS macro developed by Preacher and Hayes (2004; 2007). Sampling distributions of the total and specific indirect effects were calculated. The indirect effects were generated using a sample of size n from the data set, which was repeated k times, where k was a large number. This method can be used to assess indirect effects for multiple mediators, which allows one to investigate the indirect effect of one mediator in the context of other mediators in the model.

**Hypothesis 1: Association Between Perfectionism and GAD**

The first research question involved exploring the relationship between perfectionism and GAD. Specifically, it was hypothesized that there would be a significant positive relationship between perfectionism and GAD symptomatology. Pearson’s correlations were conducted to examine this hypothesis. Means and standard deviations are presented in Table 1, and correlations among variables are shown in Table 2. Contrary to the hypothesis, none of the variables of total perfectionism, self-oriented perfectionism, or other-oriented perfectionism were
significantly correlated with GAD ($r = .18$, $r = .09$, $r = -.01$, respectively, $p > .05$). However, there was a significant positive relationship between the dimension of socially prescribed perfectionism and GAD ($r = .25$, $p < .05$), suggesting that higher levels of this type of perfectionism are related to greater GAD symptoms.
Table 1

*Descriptive Statistics for all Study Variables*

<table>
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<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
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<th>SD</th>
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</thead>
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<td>30.00</td>
<td>12.74</td>
<td>6.03</td>
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<td>30.00</td>
<td>11.76</td>
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</tr>
<tr>
<td>Awareness</td>
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<td>27.00</td>
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<tr>
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<tr>
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<tr>
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<tr>
<td>GAD</td>
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<td>12.67</td>
<td>4.52</td>
<td>3.83</td>
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</table>

*Note.* The following abbreviations were used: SOP (Self-Oriented Perfectionism), OOP (Other-Oriented Perfectionism), SPP (Socially Prescribed Perfectionism), DERS (Difficulties in Emotion Regulation Scale), GAD (Generalized Anxiety Disorder).

* p < .05, ** p < .01, two-tailed.
Table 2

*Bivariate Correlations Among All Study Variables*

<table>
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<tr>
<td>2. OOP</td>
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<td>3. SPP</td>
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<td>4. Total Perfectionism</td>
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<td>.39**</td>
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<td>.29**</td>
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<td>.11</td>
<td>.15</td>
<td>.23*</td>
<td>.21</td>
<td>.26*</td>
<td>1.00</td>
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<td>8. DERS Strategies</td>
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<td>.20</td>
<td>.36**</td>
<td>.39**</td>
<td>.72**</td>
<td>.78**</td>
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<td>9. DERS Clarity</td>
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<td>.27*</td>
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<td>.47**</td>
<td>.52**</td>
<td>.55**</td>
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<td>10. DERS Goals</td>
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<td>.46**</td>
<td>.53**</td>
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<tr>
<td>11. Total DERS</td>
<td>.27*</td>
<td>.15</td>
<td>.36**</td>
<td>.38**</td>
<td>.82**</td>
<td>.85**</td>
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<tr>
<td>12. GAD</td>
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<td>-.01</td>
<td>.25*</td>
<td>.18</td>
<td>.57**</td>
<td>.54**</td>
<td>.15</td>
<td>.71**</td>
<td>.51**</td>
<td>.54**</td>
<td>.68**</td>
<td>1.00</td>
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</table>

*Note. The following acronyms were used: SOP (Self-Oriented Perfectionism), OOP (Other-Oriented Perfectionism), SPP (Socially Prescribed Perfectionism), DERS (Difficulties in Emotion Regulation Scale), GAD (Generalized Anxiety Disorder).  
* p < .05, ** p < .01*
**Hypothesis 2: Relationship Between Perfectionism and Emotion Dysregulation**

The second research question investigated the relationship between perfectionism and difficulties with emotion regulation. It was hypothesized that higher levels of perfectionism would be positively correlated with higher levels of emotion dysregulation.

Pearson’s correlations were calculated to examine the relationship between participants’ perfectionism tendencies and emotion dysregulation. Table 2 provides the correlations among total perfectionism, perfectionism subscales, total DERS, and DERS subscales. As predicted, total perfectionism was significantly positively correlated with total DERS ($r = .38, p < .05$). Of the perfectionism subscales, self-oriented perfectionism was significantly positively correlated with the nonacceptance of emotional responses ($r = .28, p < .05$), impulse control difficulties ($r = .23, p < .05$), and limited access to emotion regulation strategies ($r = .25, p < .05$) dimensions of the DERS. Moreover, socially prescribed perfectionism was significantly positively correlated with nonacceptance of emotions ($r = .39, p < .01$), deficits in impulse control ($r = .24, p < .05$), limited access to emotion regulation strategies ($r = .36, p < .01$), and lack of emotional clarity ($r = .31, p < .01$). However, other oriented perfectionism was not significantly correlated with DERS.

**Hypothesis 3: Association Between Emotion Dysregulation and GAD**

The third research question examined the relationship between difficulties in emotion regulation and GAD symptoms. It was hypothesized that higher levels of emotion regulation difficulties would be positively correlated with higher GAD symptomatology. Table 2 demonstrates the correlations between the various DERS subscales and GAD total score. Scores on the GAD-Q-IV were significantly positively correlated with greater difficulties in emotion regulation in general (total DERS; $r = .68, p < .01$) as well as specific deficits in subscale areas
of emotional acceptance ($r = .57, p < .01$), impulse control ($r = .54, p < .01$), access to emotion management strategies ($r = .71, p < .01$), clarity of emotional experiences ($r = .51, p < .01$), and ability to engage in goal directed behavior ($r = .54, p < .01$). GAD scores were not significantly associated with the lack of awareness of emotional experience subscale of the DERS ($r = .15, p > .05$).

**Hypothesis 4: Mediation**

To determine whether emotion dysregulation mediated the relationship between perfectionism and GAD, a hierarchical multiple regression was conducted. Consistent with the rules for examining mediation, only variables meeting the criteria for mediation were included in analyses (Baron & Kenny, 1986). Given that no significant correlation was found between total perfectionism and GAD, the mediation model could not be tested with the perfectionism total score. Alternatively, the socially prescribed dimension of perfectionism, which was the only perfectionism subscale with a significant relationship with GAD, was used for subsequent mediation analyses. Four of the emotion dysregulation subscales met criteria in steps two and three, including nonacceptance of emotional responses, lack of emotional clarity, impulse control difficulties, and limited access to emotion regulation strategies.

Lastly, in accordance with the fourth condition of mediation, multiple regression analyses were conducted, where the dependent variable was regressed on both the independent variable and mediator variables (refer to Table 3 and Figure 2 for details of the regression analyses). According to this condition, the effect of the mediator should remain significant, with the effect of the independent variable weakening due to the effect of the mediator. The results showed that the strength of the relationship between socially prescribed perfectionism and GAD decreased...
when emotion dysregulation was added as mediator in the equation. The mediation models were significant for Total DERS as well as all four DERS subscales (see Figure 2).

According to Figure 2, the beta coefficient for socially prescribed perfectionism in relation to GAD decreased from .25 to .01 and became insignificant when Total DERS was added into the regression model. Both socially prescribed perfectionism and total DERS accounted for 45% of the variance in GAD scores.

In terms of the DERS subscales, when nonacceptance was added into the model, the beta weight became nonsignificant ($\beta = .03, p = .74$), indicating that nonacceptance fully mediated the relationship between socially prescribed perfectionism and GAD. Both socially prescribed perfectionism and nonacceptance of emotions accounted for 31% of the variance in GAD scores. Similarly, when impulse was added into the regression model, the beta coefficient of socially prescribed perfectionism became non-significant, ($\beta = .12, p = .20$). Both socially prescribed perfectionism and impulse explained 30% of the variance in GAD scores. A similar finding was obtained for the DERS dimensions of strategies and clarity; the beta coefficients became nonsignificant when these components were added into the regression model. While socially prescribed perfectionism and limited access to emotion regulation strategies accounted for 49% of the variance in GAD scores, socially prescribed perfectionism and lack of emotional clarity explained 25% of the variance in GAD scores.

In sum, the beta coefficient of socially prescribed perfectionism for predicting GAD was no longer significant when DERS subscales were controlled for. This finding indicates that the correlation between socially prescribed perfectionism and GAD was fully mediated by each of the four subscales of DERS (the direct effect became insignificant suggesting that DERS fully mediated the relationship).
Table 3

Regression Analyses for the mediating effect of emotion dysregulation in the relationship between perfectionism and GAD

<table>
<thead>
<tr>
<th>Model</th>
<th>IV</th>
<th>DV</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>$R^2$</th>
<th>$F_{(df)}$</th>
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Note. IV (Independent Variable), DV (Dependent Variable), SPP (Socially Prescribed Perfectionism), DERS (Difficulties in Emotion Regulation Scale).
Figure 2. Mediation analyses for SPP, DERS subscales and GAD
Chapter 4: Discussion

The aims of the current study were fourfold: (1) to examine the relationship between perfectionism and GAD; (2) to explore the association between perfectionism and emotion dysregulation; (3) to examine the relationship between emotion dysregulation and GAD; and (4) to explore the mediating effect of emotion dysregulation in the relationship between perfectionism and GAD. Overall, the findings of the current study support the hypotheses that deficits in emotion regulation mediate the relationship between perfectionism and symptoms of GAD. The results of the study are discussed in further detail and presented in order of analysis. Limitations, clinical implications and directions for future research are presented in this section.

Perfectionism and GAD

The first hypothesis involved analyzing the relationship between perfectionism and GAD. Specifically, it was hypothesized that individuals with higher perfectionistic tendencies would show greater GAD symptoms. The findings of the present study were partially consistent with predictions. In particular, it was found that only one of the subscales of perfectionism (i.e., socially prescribed perfectionism) was significantly associated with GAD. This finding appears to fit within the literature. For example, in a sample of university students, Flett and Hewitt (1994) found that socially prescribed perfectionism was related to higher levels of anxiety. Frost, Marten, Lahart, and Rosenblate (1990) studied a sample of college student to assess the relationship between perfectionism and worry. The results of their study showed that anxiety was significantly and positively associated with total perfectionism score and with perfectionism dimensions of concern over personal mistakes and doubts about actions. Moreover, in a sample of female athletes, Frost and Henderson (1991) found a significant relationship between competitive sports anxiety and the perfectionism dimension of concern over personal mistakes.
One possible explanation for the association between socially prescribed perfectionism and anxiety is that socially prescribed perfectionists may experience external pressure to complete tasks or to achieve goals. Therefore, the anxiety symptoms of these individuals emerge from a fear of failure or a perceived need to avoid shame, guilt, or embarrassment (Klibert, Langhinrichsen-Rohling, and Saito, 2005).

The lack of a significant relationship between other-oriented perfectionism and anxiety is in line the findings of previous research (e.g., Flett, Hewitt, Endler, & Tassone, 1994). However, what was interesting was the absence of a significant relationship between self oriented perfectionism and GAD. Literature on perfectionism and anxiety appears to provide mixed findings with regards to the relationship between these two constructs. Buhr and Dugas (2006) found in a student sample that self-oriented perfectionism was significantly positively correlated with worry on the PSWQ. An additional study on a sample of college students found that self-oriented perfectionism had a weak positive relationship with anxiety (Klibert, Langhinrichsen-Rohling, and Saito, 2005).

**Perfectionism and Emotion Dysregulation**

The second research question investigated the correlation between perfectionism and emotion dysregulation. As expected, total perfectionism, including both adaptive (self-oriented) and maladaptive (other oriented and socially prescribed) components, was significantly and positively correlated with deficits in emotion regulation, as measured by DERS. This finding is in keeping with previous research. In a sample of university students, Aldea and Rice (2006) found that there was a significant association between maladaptive perfectionism and higher levels of emotion dysregulation. The authors conceptualized maladaptive perfectionism as an individual’s tendency to set high standards of performance as well as to perceive that others hold
excessive expectations of the individual. The latter component of this conceptualization is similar to the construct of socially prescribed perfectionism investigated in the current study. Unlike Aldea and Rice’s finding, however, the present study did not find a significant association between the self-oriented dimension of perfectionism and emotion dysregulation. One explanation for this could be that the current study conceptualized self-oriented perfectionism as an adaptive construct. In fact, self-oriented perfectionism has been positively associated with positive affect (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993), assertiveness and conscientiousness (Hill, McIntire, Bacharach, 1997), and intrinsic motivation (Mills & Blankstein, 2000), self-control and achievement motivation (Klibert, Langhinrichsen-Rohling, & Saito, 2005), while others have found weak correlations with anxiety, and past and current suicide ideation (Hewitt, Flett, & Weber, 1994). Therefore, future investigators should consider the adaptive as well as maladaptive aspects of self-oriented perfectionism when examining its relationship with emotion regulation.

**Emotion Dysregulation and GAD**

The third research question examined the relationship between emotion dysregulation and GAD. In particular, a positive correlation was hypothesized to exist between difficulties in emotion regulation and GAD symptoms. Overall, it was found that emotion dysregulation, as measured by DERS, was significantly positively correlated with GAD symptoms. This finding is consistent with previous research. A study comparing emotion regulation difficulties of a group of individuals with GAD with a non-GAD control group found that participants in the GAD group reported greater difficulties in emotion regulation than those in the non-GAD group (Salters-Pedneault et al, 2006). Another study comparing individuals with GAD with a control group found that individuals with GAD had more difficulty and less flexibility using emotion
regulation strategies such as acceptance and reappraisal in response to emotion-eliciting film clips (Aldao & Mennin, 2012). Indeed, it has been shown that individuals with GAD report more difficulty engaging in goals when experiencing anxiety (Salters-Pedneault et al., 2006), greater impulse strength and reactivity to their emotions, and greater difficulty engaging in effective emotion regulation strategies when experiencing negative emotions (Mennin, Heimberg, Truck, & Fresco, 2005) than controls. Additionally, it has been shown that in both clinical and non-clinical samples, individuals with GAD exhibit less clarity of emotional responses and more difficulty understanding and describing emotional experiences than controls (Mennin, Heimberg, Truck, & Fresco, 2005). Lastly, individuals with GAD have been found to have a higher tendency to attempt to control and avoid negatively evaluated internal experiences (Roemer et al., 2005) than controls.

Of note, the current study did not find a significant relationship between emotional awareness and GAD. While this was not consistent with the current study’s predictions, it appears to be in line with previous research. Other researchers have reported that individuals with anxiety symptoms report experiencing greater awareness of emotion (Baker et al., 2004). In a study examining the relationship between emotion dysregulation and GAD, Salters-Pedneault et al. (2006) found no significant associations between the DERS awareness subscale and GAD scores. Another study found that individuals with GAD showed higher emotional awareness than controls (Novick-Kline et al., 2005). One possible explanation for this lack of association could be that, due to the frequency and intensity of emotional experiences, individuals with GAD may be highly aware that they are experiencing an emotion. Moreover, it has been suggested that awareness of emotions can be either adaptive or maladaptive depending on the nature of awareness. For instance, whereas ruminating about a negative emotional experience is
maladaptive, problem solving through flexible attentional deployment is adaptive (Lischetzke & Eid, 2003). The awareness subscale of DERS does not appear to differentiate between the adaptive and maladaptive components of internal awareness (Salters-Pedneault et al., 2006), which may have resulted in the lack of association between emotional awareness and GAD symptoms.

**Mediation**

As expected, emotion dysregulation mediated the association between perfectionism and GAD. In particular, total DERS as well as four of its subscales fully mediated the relationship between socially prescribed perfectionism and GAD.

**Limitations**

The current study has several limitations that warrant caution when interpreting the results. The majority of the participants in the current study were recruited from online sites such as Craigslist, Kijiji, and Facebook. This can be problematic provided that the constructs under investigation are generally of psychopathological nature. Low levels of psychopathology may have resulted in non-significant or weaker than expected association where one may find significant relationships in a clinical sample. As the relationships examined in the present study may be different in a clinical sample, which limits the generalizability of findings to the clinical context, it is highly recommended that future studies recruit participants from a clinical sample.

Another limitation of the present study involved the use of self-report measures of the study variables. Self-report measures are well known to be susceptible to response bias. Participants may respond to questions in ways they think are expected of them. In particular, participants with perfectionistic tendencies may be motivated to select the “best” responses that would create the impression that they are “perfect”. Such participants may manipulate their
responses to avoid negative evaluation. Moreover, these participants are more likely to change their responses to conform to what they suspect the study’s hypotheses are. Thus, the relationships found in the current study may be the product of such biases rather than true relationships. Future studies should incorporate data from other sources to enhance the validity of findings.

Even though the findings suggest that difficulties with emotion regulation might be an important element in understanding how perfectionism and GAD are related, the cross-sectional design does not allow for any firm conclusions to be made regarding causal relationships between the mediating and outcome variables. Therefore, future research should examine GAD symptoms along with perfectionism and emotion dysregulation over time in order to explore how perfectionists might develop GAD symptoms.

**Directions for Future Research and Clinical Implications**

The current study suggests several important directions for future research. First, it is important to study perfectionism, emotion dysregulation, and GAD in clinical samples. Longitudinal studies of clinical samples would be especially informative. Second, the importance of contextual factors should be taken into account. Future research should focus on both adaptive and maladaptive aspects of the various dimensions of perfectionism. While some elements of perfectionism, such as socially prescribed perfectionism, may be more detrimental to mental health, others such as self oriented perfectionism may in fact have adaptive features. Clinical attention should be given to increase these adaptive aspects of perfectionism. Defining adaptive and maladaptive features of each of the dimensions of perfectionism might facilitate a greater understanding of the construct of perfectionism. Some components of perfectionism are associated with psychological distress whereas others may be associated with psychological
health. This may require the development of revised measures of perfectionism since the most widely used current measures (i.e., Hewitt & Flett's MPS; Frost, Marten, Lahart, & Rosenblate, 1990) generally focus on the maladaptive features of perfectionism.
References


Emotion, 13(5), 575-599.


Appendix A
Demographic Information

Age:

Gender:

Marital Status: □ Single  □ Common Law  □ Married  □ Separated  □ Divorced  □ Widowed

Highest level of education completed: □ Some high school  □ High school diploma or GED  □ College or Trade School  □ Some University  □ University Undergraduate Degree  □ Post Graduate Degree

Occupation:

Primary language:

Ethnicity/Race:

Previous psychotherapy experience:

Previous psychotropic medication(s):
You are invited to participate in a research study being conducted by Nikoo Shirazi, B.Sc., M.A. candidate, from the department of Adult Education and Counselling Psychology at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). This study is being conducted under the supervision of Dr. Jeanne Watson, Ph.D., C. Psych.

The purpose of this study is to examine the relationships among perfectionism, how one responds and behaves when upset, and how one generally presents anxiety symptoms. Qualifying participants must also meet the following criteria:

1. Be 18 years or older
2. Have access to and use of the Internet
3. Able to write and read English fluently
4. Not currently involved in psychotherapy
5. Not currently taking any psychotropic medications (e.g., antidepressants)
6. Not currently at risk of harming oneself or another person

Qualifying individuals who participate in the study will be entered into a draw to win a $50 Amazon.ca gift card. Participation will involve completing online surveys, which will take approximately 20-25 minutes to complete. Online surveys can be completed in no more than one sitting.

If you are interested in learning more about the study, please contact Nikoo Shirazi at nikoo.shirazi@mail.utoronto.ca. If you know anyone who might be interested, we would appreciate it if you would pass along this message.

Thanks!
Appendix C
Study Poster

Participants Needed
For research on perfectionism and anxiety

Do you consider yourself a perfectionist? Do you experience anxiety due to being a perfectionist? If so, you may be eligible to take part in this research.

Qualifying participants must meet the following criteria:

1) Be 18 years or older
2) Able to write, and read English fluently
3) Have access to and use of the Internet
4) Not currently involved in psychotherapy
5) Not currently taking any psychotropic medications (i.e., antidepressants)
6) Not currently at risk of harming yourself or another individual

Qualifying participants will be entered into a draw to win a $50 Starbucks gift card.

Note: you must have a valid email address to enter the draw.

Interested? Please email nikoo.shirazi@mail.utoronto.ca
Appendix D
Information and Consent

Thank you for your interest in participating in this study. My name is Nikoo Shirazi and I am an M.A. student in Counselling and Clinical Psychology at the Ontario Institute for Studies in Education at the University of Toronto, working under the supervision of Dr. Jeanne Watson, Ph.D. C.Psych.

Purpose of the Study

The purpose of this study is to investigate the relationship between one’s perfectionistic thoughts and tendencies, his/her thoughts and behaviour when feeling upset, and his/her symptoms of anxiety. It is our hope that the results of this study will contribute to our understanding in this field and help inform and guide psychological practice.

Procedure

Anyone over the age of 18 is invited to participate in this study. Participants will be asked to complete an online survey, which involves responding to general background questions and completing three questionnaires that require rating thoughts, actions, and feelings. The survey will take approximately 20-25 minutes and will be completed entirely online.

Confidentiality

There is no identifying information requested, thus all information collected from you will remain anonymous. In order to ensure privacy and confidentiality, all survey responses on the website are secure, using SSL encryption to ensure unwanted access by other Internet users. After completing the survey, responses are downloaded automatically to a firewalled, secure, continuously monitored location and no online records will be kept. Furthermore, data collected from your participation will only be used for this research study and no one, except my supervisor and myself, will have access to the data records. Data will be stored in a locked cabinet at OISE/UT for approximately 15 years at which point they will be destroyed.

Potential Risks and Discomforts

There are no physical risks associated with participating in this online survey. However, some of the questions may make you feel uncomfortable because they ask about you and your psychological functioning. We will provide you with contact information of community resources that specialize in helping people who are experiencing difficult emotions and may need someone to talk to. Should you feel you need immediate assistance for your distress, please contact your local emergency department.

Benefits of Participation

Although there are no direct benefits to you for participating in this study, the information you provide will help the researchers gain valuable information about factors that contribute to
anxiety symptoms. In addition, all participants will receive a list of helpful contacts for their future reference.

**Compensation**

Participants in this study will be entered into a draw to win a $50 Amazon.ca gift certificate towards the purchase of books, electronics, music, movies, TV shows, software, video games, etc. Those who are interested in being entered into this draw will be asked to leave a valid email address at the end of the survey. The winner will be notified and forwarded their $50 gift certificate from Amazon.ca to the email provided during the survey.

**Other Information**

If you are interested in obtaining a brief report of the results, please feel free to contact the principal investigator.

**Rights of Research Participants**

You may withdraw your consent at any time and discontinue participation without any negative consequences. If you choose to withdraw from the study during the online survey, simply click on the “Withdraw” button at the bottom of each screen. If you choose to withdraw from the study following completion of the online survey, you may contact us with your anonymous ID code, which the researchers will then use to locate your data and delete your information from the database.

Please feel free to contact my supervisor, Dr. Watson, or myself if you have any questions or concerns about the study.

Nikoo Shirazi Email: nikoo.shirazi@mail.utoronto.ca  
Phone: (416) 660-5932

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

Below you will be asked to indicate if you consent to taking part in this study by clicking “I Consent”, which will also indicate that you have read and understood the conditions of this study and that you agree that you are over the age of 18. Submission of the completed survey will be indication that you consent for your data to be used in this study. Thank you very much for your time.

Please print this screen if you want a copy of this page for your own records.

Please click “I Consent” below to indicate that you agree to participate, that you have read and understood the conditions under which you will participate, and that you are over 18 years old.

_ I Consent_  _ I Do Not Consent_
Appendix E
Emergency Contact Resources

If you feel that you are need of assistance, please refer to the numbers below. **Helplines** should be called if you wish to talk to someone anonymously, or if you would like advice on what to do next. **Hospital emergency rooms** should be called and/or visited if you feel that you are at risk for harming yourself, harming someone else, or if you feel you cannot cope with your current distress. **University counselling centres** should be called and/or visited if, during regular business hours, you would like to schedule a future appointment with a counsellor or if you are interested in obtaining resources that might help with your distress (e.g., information booklets). **Crisis teams** should be contacted if you feel you are in need of immediate assistance and are not sure what to do next.

**Helplines**

Kids Helpline (up to age 20)
1-800-668-6868

Assaulted Women’s Helpline
1-866-863-0511

Sexual Abuse Hotline
416-597-8808

Distress Centres of Toronto
416-408-4357

Telehealth Ontario
1-866-797-0000

**Hospital Emergency Rooms**

North York General
(Sheppard & Leslie)
416-756-6001

Humber River Regional
(400 & Finch)
416-747-3833

St. Michael’s
(Yonge & Queen)
416-864-5346
Toronto Western
(Bathurst & Dundas W)
416-603-5757

Scarborough General
(Lawrence & McCowan)
416-431-8200 ext. 6300

Toronto General
(College & University)
416-340-3946

York Central
(Major MacKenzie, between Bathurst and Yonge)
905-883-2041

Centre for Addiction and Mental Health
(Queen & Ossington)
416-979-6855

Hamilton General
(Barton, between Wellington and Victoria)
905-521-2100

University Counselling Centres

Ryerson University Centre for Student Development and Counselling
(Jogenson Hall, Room 07)
416-979-5195

University of Toronto Counselling and Learning Skills Service
(Koffler Student Services Centre, Room 111)
416-978-7970

York University Counselling and Development Centre
(Bennett Centre for Student Services, Room N110)
416-736-5297

McMaster University Centre for Student Development
(McMaster University Student Centre, B107)
905-525-9140

Crisis Teams

Durham Mental Health Services
1-800-742-1890 or 905-666-0483
The Gerstein Centre
(Toronto)
416-929-5200

The Integrated Community Mental Health Crisis Response Program
(North York and Etobicoke)
416-498-0043

Peel Crisis Team
905-278-9036

Scarborough Mobile Crisis Team
416-289-2434

York Support Services
905-953-5412

Crisis Outreach and Support Team
(Hamilton)
905-972-8338