ASSOCIATION OF META-COGNITIVE REACTIONS TO NEGATIVE EMOTIONS TO ANXIETY AND DEPRESSIVE PATHOLOGY

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INTRODUCTION

At some point in their lifetime, nearly half of individuals living in the United States will experience symptoms of psychopathology of sufficient severity and duration to constitute a psychiatric disorder (Kessler et al., 2005a). Psychiatric disorders characterized by maladaptive emotional functioning, specifically mood and anxiety disorders, are the most prevalent form of psychopathology (Kessler et al., 2005a). Two of the most common emotional disorders, major depressive disorder (MDD) and generalized anxiety disorder (GAD), entail profound suffering and impairment (Kuehner, 2002; Wittchen, Zhao, Kessler, & Eaves, 1994) and represent an enormous societal burden (see Greenberg, Kessler, & Birnbaum, 2003; Kessler & Greenberg, 2002). MDD has been identified as one of the foremost public health threats of the 21st century (Judd & Kunovac, 1997) as this debilitating mood disorder affects approximately 6.7% of the U.S. population each year (i.e., 12-month prevalence; Kessler, Chiu, Demler, & Walters, 2005b). MDD is often a lifelong disorder with future relapse and recurrence being the norm following initial recovery from a major depressive episode (Judd & Kunovac, 1997). MDD also carries a high economic cost in terms of mental health treatment, greater medical expenditures for physical health problems in individuals with MDD, lower productivity in workers with MDD, and indirect costs related to premature mortality (i.e., suicide and health-related deaths) among employees with MDD (Greenberg et al., 2003).
GAD is a disabling, chronic, and often lifelong anxiety disorder (see Keller, 2002) that affects approximately 3.1% of the U.S population each year (i.e., 12-month prevalence; Kessler et al., 2005b). GAD is characterized by an early onset (i.e., often beginning in early adolescence; Kessler et al., 2005b) and individuals with GAD often experience substantial symptoms for up to 20 years, with less than 40% of individuals achieving remission after 5 years (Keller, 2002). GAD is one of most treatment-resistant anxiety disorders (Gould, Safren, Washington, & Otto, 2004) and extent of impairment in individuals with GAD has been found to be comparable to impairment in individuals with MDD (Kessler, DuPont, Berglund, & Wittchen, 1999; Stein & Heimberg, 2004; Wittchen, 2002). For example, relationships have been found between GAD and over-utilization of the health care system (Blazer, Hughes, & George, 1991; Roy-Byrne & Katon, 1997), impairments in work functioning (Olfson et al., 1997; Wittchen et al., 1994), and impairments in daily functioning, social functioning, and marital functioning (Massion, Warshaw, & Keller, 1993; Wittchen et al., 1994).

GAD rarely occurs in isolation as this chronic condition, like most psychiatric conditions, is characterized by comorbidity (Kessler et al., 2005b). Indeed, individuals with GAD are highly likely to meet criteria for MDD at some point in their lifetime (see Brown, Campbell, Lehman, Grisham, & Mancill, 2001; Kessler et al., 1999). Theoretically, GAD may confer vulnerability to further emotional pathology as it commonly temporally precedes the onset of MDD (i.e., GAD often begins in early adolescence, MDD often begins in adulthood; see Kessler, 2005b). The high rates of comorbidity between GAD and MDD have given rise to theoretical disputes regarding
the conceptualization and delineation of GAD given its diagnostic overlap with MDD (e.g., Mennin, Heimberg, Fresco, & Ritter, 2008; Watson, O'Hara, & Stuart, 2008). Some researchers have emphasized the common features between GAD and MDD in terms of general distress and negative affectivity (see Watson, 2005; Watson et al., 2008), while other researchers have emphasized distinct emotional, cognitive, physical, and motivational differences between the two disorders (Aldao, Mennin, Linardatos, & Fresco, 2010; Mennin et al., 2008). Indeed, theorists have posited that depression and anxiety may be influenced by distinct motivational antecedents (e.g., Higgins, 1997). Currently, there are very limited empirical findings regarding distinct and common features between MDD and GAD, necessitating further study of emotional functioning as it pertains to these two disorders.

In order to further the understanding of the onset, maintenance, and treatment of MDD and GAD, researchers have endeavored to identify intrapersonal factors that may contribute to MDD and GAD. One area of theoretical interest to these two disorders is emotional functioning. Emotionality is central to the diagnosis of MDD as this disorder is characterized by high levels of sadness and low levels of positive emotions such as joy and interest. Likewise, emotionality is central to the diagnosis of GAD as this disorder is characterized by high levels of chronic anxiety (American Psychiatric Association, 1994). Despite the integral role of emotionality in MDD, GAD, and other psychiatric disorders, emotional functioning has historically been a neglected area in psychopathological research (see Greenberg, 2002; Samoilov & Goldfried, 2000). However, in the past ten years, researchers have been increasingly turning towards emotion regulation research
and affective neuroscience to gain a greater understanding of the nature and treatment of psychiatric disorders, including MDD and GAD (e.g., Davidson, Pizzagalli, Nitschke, & Putnam, 2002; Rottenberg, Gross, & Gotlib, 2005; Salters-Pedneault, Roemer, Tull, Rucker, & Mennin, 2006; Teasdale, 1999).

Although certain areas of research regarding emotional functioning, such as over-use of potentially problematic emotion management strategies (e.g., Gross & John, 2003; Rude & McCarthy, 2003), have received increasing attention in psychopathological research, meta-cognitive reactions to emotions have received less attention. Meta-cognitive reactions to emotions refer to the manner in which individuals cognitively appraise and emotionally respond to the provocation of their feelings. As such, meta-cognitive reactions to emotions entail beliefs regarding emotions, such as viewing sadness as a harmful experience that should be avoided (see Leahy, 2002), as well as secondary emotional reactions to one’s feelings, such as feeling ashamed that one is sad (see Greenberg, 2006). While primary emotional responses have been conceptualized as stemming from one’s direct reactions to the environment, such as feeling sad when encountering a loss, secondary emotional responses stem from one’s reactions to one’s feelings (e.g., feeling nervous about being angry; see Greenberg, 2006; Greenberg & Safran, 1989). Negative beliefs about emotions and problematic emotional responses to one’s feelings are an important consideration in psychopathology. For example, a meta-cognitive reaction to anxiety known as anxiety sensitivity, or fear of anxiety sensations due to a belief that anxiety produces negative social, psychological, or somatic consequences (Reiss, 1991), is central to the cognitive-behavioral conceptualization and
treatment of panic disorder (e.g., Barlow & Craske, 2006). Indeed, many forms of psychotherapy target maladaptive beliefs regarding emotions and problematic emotional responses to one’s feelings (e.g., Beck, Rush, Shaw, & Emery, 1979; Hayes, Strosahl, & Wilson, 1999; Linehan, 1993). As very few studies have examined meta-cognitive reactions to negative emotions as they relate to GAD, with even fewer studies examining these reactions in relation to MDD, the current study sought to further the understanding of meta-cognitive reactions to emotions in MDD and GAD.

**Emotional Functioning**

Emotional functioning is an important consideration in psychopathological research as emotions are fundamental aspects of the human experience (see Ekman, 1992a; Izard, 1977; Lazarus & Smith, 1988). Ekman (1992b; 1999) has presented evidence for the existence of at least two basic positive emotions, happiness and surprise, and four basic negative emotions: anger, fear, disgust, and sadness. These emotions are believed to be basic or universal as they are found in many different cultures, are cross-culturally recognized by specific facial expressions (see Ekman, 1989), and trigger distinct patterns of activity in the autonomic nervous system (e.g., Ekman, Levenson, & Friesen, 1983; Levenson, Carstensen, Friesen, & Ekman, 1991).

Although definitions of emotions vary (e.g., Cole, Martin, & Dennis, 2004; Frijda, 1986; Keltner & Gross, 1999), there is general consensus that emotions are short-lived states that reflect the activation of motivational systems (e.g., Carver & Scheier, 1998; Gray & McNaughton, 2000; Higgins, 1997) and are triggered when attention is allocated
to real or imagined events that are relevant to one’s goals or values (see Lang, 1978). For instance, sadness can be triggered when something desired or cherished is lost (see Barr-Zisowitz, 2000; Ellsworth & Smith, 1988; Izard, 1977; Smith & Lazarus, 1993) or when an individual evaluates a discrepancy between his or her actual and ideal self (see Higgins, 1997). Emotions usually involve a loosely coordinated pattern of experiential, physiological, and behavioral responses (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). The experiential component of an emotion, such as fear, is what the individual subjectively “feels” (e.g., “I feel terrified”). The feelings are usually associated with action urges (e.g., wanting to run; Frijda, 1986), physiological changes in the body (e.g., changes in respiration rate), behavioral reactions (e.g., moving away from the fear-eliciting target), and additional physiological changes derived from the motor activity involved in the behavioral responses (see Gross & Thompson, 2007).

In terms of functionality, emotions can be used as a form of intrapersonal information as they indicate the individual’s goals and values in a given situation (e.g., Clore, 1994; Keltner & Haidt, 1999; Lang, 1978; Schwarz, 1990). The goals or values signaled by emotions can range from long-lasting, conscious, and complex values that are integral to one’s sense of self (e.g., maintaining a supportive romantic relationship), to goals that are momentary, unconscious, and simple (e.g., protecting oneself from immediate bodily harm; see Gross & Thompson, 2007). For instance, anger can indicate that an individual believes that he or she is being mistreated. This information can be used by the individual to address the mistreatment or attempt to prevent mistreatment from reoccurring in the future (Averill, 1982; Berkowitz, 1990; Hupert & Alley, 2004;
Weiner, 1985). Emotions can also be used by the individual to aid in decision making and planning. For instance, positive emotions such as joy can widen one’s array of cognitions and actions and create new approach behaviors (Fredrickson, 2001). Negative emotions such as anxiety can focus one’s attention towards a specific problem area (e.g., one is unprepared for an upcoming exam) so that goals can be clarified and solutions to a given issue can be generated (Parrott, 2001).

In addition to conveying intrapersonal information, emotions are integral components of interpersonal interactions and social relationships (e.g., Averill, 1980; Ekman, 1992a; Lutz & White, 1986; Tooby & Cosmides, 1990). For instance, emotional expressions like smiling can initiate and maintain social interactions (Darwin, 1872; Ekman, 1993; Keltner, 1995). Emotional expressions can also communicate how a person is reacting to the environment (Ekman & Davidson, 1993; Izard, 1990; Zajonc, Murphy, & Inglehart, 1989) and can help other individuals predict how the person is likely to behave (Izard, 1991; Plutchik, 1980; Scherer, 1982). Indeed, researchers have proposed a central role for emotions in shaping the nature of romantic relationships (e.g., Levenson & Gottman, 1983) and relationships within the family unit (e.g., Bowlby, 1969; Dunn & Munn, 1985). In addition, the expression of emotions can be influenced by social context and may play an important role in interactions in the workplace (see Hochschild, 1983).
Emotional Dysfunction

Although emotions have highly adaptive functions and are useful in relaying important intrapersonal (see Clore, 1994) and interpersonal information (see Tooby & Cosmides, 1990), emotional responses can become deleterious when they are characterized by invariable deficits, excesses, or lability (Kring & Werner, 2004). In addition, emotional reactions can become problematic when strategies aimed at altering or limiting the expression or experience of emotions are employed inefficiently, excessively, rigidly, or not at all (Kring & Werner, 2004). Indeed, dysfunction in executive responses to emotions is a growing area of study in MDD and GAD research (e.g., Hupert & Alley, 2004; Mennin, Holaway, Fresco, Moore, & Heimberg, 2007; Roemer & Orsillo, 2002). Mennin and Fresco (2009) proposed that executive responses to emotions can involve awareness and understanding of emotions (i.e., identifying, describing, and distinguishing between different emotions), meta-cognitive reactions to emotions (i.e., cognitive appraisals of and emotional reactions to one’s feelings), and management of emotions (i.e., knowing how and when to diminish or enhance an emotional experience in a manner that is appropriate for a given context).

Whereas lack of ability to describe and identify emotions (e.g., Bagby, Parker, & Taylor, 1994; Gohm & Clore, 2002; Salovey, Stroud, Woolery, & Epel, 2002) and poor emotion management (e.g., Garnefski & Kraaij, 2006; Gross & John, 2003; Rude & McCarthy, 2003) have received increasing attention in psychopathological research, meta-cognitive reactions to emotions have received less attention. The current study will focus on executive responses to emotions in the form of individuals’ meta-cognitive
reactions to their emotions. Meta-cognitive reactions to emotions may be of particular relevance to MDD and GAD as the manner in which individuals cognitively and emotionally responds to the provocation of their feelings has been identified as a possible source of vulnerability to MDD (e.g., Segal, Williams, & Teasdale, 2002) and GAD (e.g., Mennin & Fresco, 2009; Mennin, Heimberg, Turk, & Fresco, 2005). Furthermore, treatment approaches that address detrimental meta-cognitive reactions to emotions and encourage allowance and acceptance of one’s feelings have emerged for both MDD (e.g., Hayes et al., 1999; Greenberg & Watson, 2005; Segal et al., 2002) and GAD (e.g., Hayes et al., 1999; Mennin, 2006; Newman, Castonguay, Borkovec, Fisher, & Nordberg, 2008; Roemer & Orsillo, 2005).

**Meta-Cognitive Reactions to Emotions**

Individuals interpret and evaluate their inner experiences (see Clore & Ortony, 2000; Wells, 1995), including their emotions (see Leahy, 2002). For instance, individuals can evaluate whether their current emotional responses are what they “should” be feeling in a certain context, given perceived social expectations (see Hochschild, 1983). Although originally meta-cognition referred to appraising and understanding one’s own cognitive processes or “thinking about thinking” (see Flavell, 1978), current conceptualizations of meta-cognitive reactions to inner experiences have moved beyond this initial definition. The process of cognitively appraising (e.g., believing an emotion is wrong or bad) and emotionally reacting to feelings (e.g., becoming embarrassed about being nervous), has been referred to, in different capacities, as meta-mood (Mayer &
Gaschke, 1988), anxiety sensitivity (Reiss, 1991), meta-emotion philosophy (Gottman, Katz, & Hooven, 1996), experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), fear of emotions (Williams, Chambless, & Ahrens, 1997), emotional schemas (Leahy, 2002), negative cognitive reactivity (Mennin et al., 2005), and emotional distress tolerance (Clen, Mennin, & Fresco, 2011). Although these constructs differ in content and scope, all of these constructs entail emotional reactions to one’s feelings, beliefs regarding, attitudes towards, or evaluations of one’s emotions, or extent of willingness to experience one’s emotions.

For the purposes of the current study, meta-cognitive reactions to emotions will encompass evaluations of and beliefs regarding emotions, emotional reactions to one’s feelings, and extent of acceptance of emotions as natural or valid experiences. Individuals high in negative meta-cognitive reactions to emotions hold beliefs in which negative qualities are ascribed to emotions, such as the emotion being viewed as highly problematic in its effects or consequences (e.g., “Anxiety will make me lose control of myself”). Emotions may be viewed as inherently “bad” experiences that the individual is unwilling to allow (e.g., “Why do I get so sad, what is wrong with me?”). Individuals may also hold beliefs in which they view themselves as incapable of effectively managing emotional experiences. The emotion is believed to “make” the individual behave in regrettable ways. Individuals high in negative meta-cognitive reactions to emotions also demonstrate problematic secondary emotional reactions to their feelings (e.g., feeling embarrassed about being nervous). Problematic secondary emotional responses (i.e., emotions stemming from reactions to unwanted feelings) arise due to
discomfort with one’s emotions and may serve to avoid fully experiencing difficult emotions. However, these reactions exacerbate suffering and preclude the processing and utilization of important emotional information regarding the individual’s needs and values in a given situation (see Greenberg, 2006; Greenberg & Safran, 1989). Negative beliefs regarding emotions and discomfort with one’s feelings may lead to ineffective coping strategies in which important issues are not addressed due to the desire to avoid the feelings elicited by difficult situations (see Hayes et al., 1999). Individuals high in negative meta-cognitive reactions to emotions may respond to the provocation of their feelings in a manner designed to eliminate, avoid, and reduce awareness of their emotions, even if such strategies have negative long-term consequences.

The current study will focus on meta-cognitive reactions to negative emotions, in particular. The term “negative” emotions, as used in the current study, refers to the following families of basic emotions identified by Ekman (1992b; 1999): sadness, fear, anger, and disgust. Although the subjective experience of each emotion will differ between individuals, these aforementioned emotional categories will be referred to as negative to be consistent with previous literature (e.g., Ekman, 1992b; Ekman, 1999; Izard, 1977) as well as to reflect that these families of emotions are usually elicited by anticipating or encountering undesired outcomes or events (see Stein & Levine, 1989).

Although the current study will focus on negative meta-cognitive reactions to negative emotions, it is worth reviewing the conceptualization of adaptive meta-cognitive reactions to negative emotions. As negative emotions can be elicited by anticipating or encountering undesired events (e.g., loss, mistreatment, social reprimands, possible harm
or danger; see Stein & Levine, 1989), even healthy individuals are unlikely to find these experiences to be pleasant. Furthermore, negative emotions can facilitate behavioral urges (e.g., wanting to escape) and physiological changes (e.g., sweating; see Gross & Thompson, 2007) that may increase the deliberate effort needed in order to behave in a manner that is effective for one’s situation. Although the experience of negative emotions is unlikely to be desirable or pleasant, individuals low in negative meta-cognitive reactions to negative emotions would view negative emotions as experiences that are normal, natural, and to be expected given certain environmental circumstances.

Negative emotions may not be among the individual’s favorite or desired experiences, but individuals low in negative meta-cognitive reactions to negative emotions would not react to such experiences with fear, disgust, or shame as these emotions are not viewed as inherently wrong or problematic (e.g., “I get sad sometimes, who doesn’t?”). These individuals view their negative emotions as signals that there may be something they need to address in their environment (e.g., “I was really disappointed with my performance review, maybe I need to look at how I could improve at work”). Individuals low in negative meta-cognitive reactions to negative emotions view themselves as capable of managing their negative emotions, such as believing that they can effectively soothe themselves when they are distressed. These individuals believe that they can engage in desired actions despite feeling strong negative emotions (e.g., “I get very nervous before presentations so I make sure to practice the day before, get plenty of rest, and remind myself that it is not the end of the world if I mess up”). Furthermore, individuals low in negative meta-cognitive reactions to negative emotions would focus
more on addressing the problematic situation that elicited the emotion (e.g., being unprepared for an upcoming presentation), rather than viewing the emotion itself as problematic.

**Negative Meta-Cognitive Reactions to Negative Emotions and Anxiety and Depressive Pathology**

Hayes and colleagues have proposed that the process of evaluating and reacting with aversion to inner experiences (i.e., the desire to avoid or eliminate the experience) is facilitated by the relational frameworks that our inherent in our language and cognitive functioning (see Hayes et al., 1999; Hayes, Barnes-Holmes, & Roche, 2001). Through cognition and language, individuals can apply negative evaluations to inner experiences (e.g., the inner experience is “unbearable”), which then become associated with the provocation of the inner experience, making the negative judgment seem to be an innate quality of the experience (e.g., Hayes et al., 1999). As a result, individuals can have difficulty disentangling the actual inner experience from their evaluation of and aversive reaction to the experience (see Hayes et al., 1999).

One negative judgment that may be applied to emotions is that the emotion itself is dangerous, harmful, or cannot be experienced without the individual incurring undesired consequences. For instance, Reiss (1991) proposed that individuals may believe that anxiety sensations are threatening or harmful and these beliefs promote fearful reactions to experience of anxiety. This phenomenon was referred to as “anxiety sensitivity” or the fear of anxiety sensations due to the belief that anxiety produces
negative social, psychological, or somatic consequences (Reiss, 1991). Ironically, individuals who react with intense aversion to anxiety may be vulnerable to pathological experiences of anxiety. For example, anxiety sensitivity has been found to longitudinally predict the presence of panic attacks, even after controlling for trait anxiety and history of panic attacks, in both college students (Maller & Reiss, 1992) and military personnel (Schmidt, Lerew, & Jackson, 1999). Anxiety sensitivity has also been associated with self-reported anxiety symptoms (McNally & Eke, 1996; Zvolensky et al., 2002) and bodily sensations (McNally & Eke, 1996) in college students during laboratory-induced hyperventilation challenges. Although anxiety sensitivity has been mainly studied in relation to panic disorder, elevated levels of anxiety sensitivity have also been found in individuals with GAD (Taylor, Koch, & McNally, 1992).

Similarly, a phenomenon known as “fear of emotions” entails apprehension about losing control over one’s emotions or reacting in an undesired manner during emotional experiences (e.g., “I am concerned that I will say things I'll regret when I get angry”; Williams et al., 1997). Fear of emotions originated with the “fear of fear” phenomenon found in individuals with agoraphobia (Goldstein & Chambless, 1978) and was later extended to account for fear of anxious arousal in individuals with anxiety disorders, fear of depression in individuals with MDD (Barlow, 1991; Reiss, 1991; Taylor & Rachman, 1991), as well as fear of anger and fear of happiness (Williams, et al., 1997). Empirical findings regarding fear of emotions have found this construct to be associated with fear of laboratory-induced panic sensations (e.g., breathlessness, heart palpitations) in college
students with no history of panic attacks (Williams et al., 1997), even when accounting for state and trait anxiety (Berg, Shapiro, Chambless, & Ahrens, 1998).

In examining fear of emotions as it relates to GAD, Roemer, Salters, Raffa, and Orsillo (2005) found that fear of anxiety was related to severity of self-reported anxiety and MDD symptoms, and fear of depression was related to severity of self-reported MDD symptoms, in patients with GAD. In addition, patients with GAD endorsed more fear of anxiety and marginally more fear of depression, than a non-clinical sample of individuals (Roemer et al., 2005). Furthermore, a study on college students found fear of emotions to mediate the relationship between self-reported GAD, as assessed the day before the September 11, 2001 terrorist attacks, and symptoms of anxiety, negative mood, social impairment, and work impairment measured four months after the attacks (Farach, Mennin, Smith, & Mandelbaum, 2008). Findings and theory regarding anxiety sensitivity and fear of emotions indicate that negatively evaluating and reacting with aversion to one’s negative emotions is related to vulnerability to psychopathology.

Beliefs regarding negative emotions being problematic, harmful, or uncontrollable are highly related to beliefs regarding coping ability in a given negative emotional situation. For example, individuals who are apprehensive about experiencing negative emotions likely do not view themselves as capable of effectively managing these emotions and as such, these emotions are viewed as daunting experiences (e.g., fear of anxiety; “Once I get nervous, I think that my anxiety might get out of hand”; Berg et al., 1998; Williams et al., 1997). Individuals with beliefs reflecting low coping ability in a given negative emotional situation may not believe that they can experience negative
emotions without undue disruptions in their lives or without slowing or ceasing progress towards important goals. For instance, individuals may not believe that they can do anything to soothe themselves when experiencing negative emotions (e.g., “Once anxiety gets a hold of me there is nothing I can do to calm myself”), engage in productive or active behavior when experiencing negative emotions (e.g., “I cannot get anything done when I am sad, I just cancel plans and go to bed”), or control impulsive urges when distressed (e.g., “When I get angry I just lose it, I really try to hurt the other person”).

Indeed, researchers have found individuals’ beliefs about their ability to alleviate negative moods (e.g., “When I’m upset, I believe that there is nothing I can do to make myself feel better”) to be associated with self-reported MDD symptoms in college students (Catanzaro, 1993; Kirsch, Mearns, & Catanzaro, 1990), level of active coping strategies in college students (Kirsch et al., 1990), self-reported MDD symptoms in elderly adults, and level of avoidant coping strategies in elderly adults (Catanzaro, Horaney, & Creasey, 1995). Furthermore, recovered depressed individuals were found to endorse less belief in their ability to engage in goal-directed behavior when upset, than never-depressed control participants (Ehring, Fischer, Schnulle, Bosterling, & Tuschen-Caffier, 2008).

In addition to viewing emotions as harmful or potentially uncontrollable, negative meta-cognitive reactions to negative emotions may involve discomfort with negative emotions due to beliefs that negative emotions are useless experiences, signs of personal weakness, or judgments that emotions are inherently “wrong” or “bad” (e.g., “I should not be nervous right now…it is stupid and pointless”). Indeed, researchers have examined
the construct of emotional nonacceptance as it relates to psychopathology. Emotional nonacceptance has been discussed in different capacities but usually entails responding to emotions with aversion or viewing emotions as invalid experiences (e.g., “When I’m upset, I become embarrassed for feeling that way”; Gratz & Roemer, 2004). For example, Campbell-Sills, Barlow, Brown, and Hofmann (2006) found a clinical sample of patients with mood disorders and anxiety disorders to be less accepting of induced negative emotions as compared to healthy control participants. Salters-Pedneault and colleagues (2006) found that nonacceptance of negative emotions was associated with self-reported levels of worry and GAD symptoms. Furthermore, Ehring and colleagues (2008) found that recovered depressed individuals endorsed less acceptance of negative emotions than never-depressed individuals.

Nonacceptance of negative emotions and lack of willingness to experience negative emotions have also been examined in relation to experiential avoidance. Hayes and colleagues (1996) defined experiential avoidance as a phenomenon in which an individual is unwilling to remain in contact with inner experiences (e.g., emotions, thoughts, physical sensations, urges) and attempts to alter the quality or frequency of the inner experiences or the situations that produce these experiences. Hayes and colleagues (1999) argued that emotional nonacceptance is facilitated by the negative connotations of “difficult” emotions that are inherent in our language. Through language, verbal labels are assigned to emotions, for example “sadness”, which may include an automatic evaluation of “badness” in our language (Hayes et al., 1999). The bidirectionality of human language makes badness seem to be an innate quality of a negative emotion such
as sadness, rather than a subjective evaluation. Therefore, individuals may view difficult emotions as inherently “wrong” or “bad” experiences that should be avoided (Hayes et al., 1999). Indeed, Hayes and colleagues (2004) found a measure of experiential avoidance, an aspect of which is nonacceptance of emotions, to be associated with self-reported anxiety and MDD symptoms in clinical and non-clinical samples.

Findings and theory regarding anxiety sensitivity, fear of emotions, and nonacceptance of emotions indicate that negative meta-cognitive reactions to negative emotions may produce detrimental consequences. Individuals who react to their negative emotions with aversion (e.g., feeling ashamed that one is nervous) and hold negative beliefs regarding negative emotions (e.g., “Anxiety will make me lose control”) likely view their emotions as hindrances that will impede their ability to function, rather than as sources of intrapersonal and interpersonal information. Indeed, negative meta-cognitive reactions to negative emotions may preclude individuals from processing the valuable information that emotions convey regarding motivations, values, and goals, and thus may reduce effective adaptation to the environment (see Mennin & Fresco, 2009). The current study will examine meta-cognitive reactions to negative emotions in relation to MDD and GAD symptoms. The current study will also examine meta-cognitive reactions to negative emotions as they pertain to brooding and worry, which are relevant factors in MDD and GAD.
**Negative Meta-Cognitive Reactions to Negative Emotions and Maladaptive Repetitive Thought**

Researchers have proposed that engaging in passive, repetitive thought in response to negative emotions (e.g., depressive rumination, worry) may contribute to MDD and GAD. Depressive rumination is a form of passive, repetitive thought that focuses on sadness, accompanying symptoms of distress, and the possible implications and consequences of one’s sadness and distress (e.g., “Why can’t I handle things better?”; see Nolen-Hoeksema, McBride, & Larson, 1997). Worry has been described as a form of passive, repetitive thought that involves a focus on undesired negative outcomes that may occur in the future (e.g., “What if I can’t handle the job and get fired?”; see Borkovec & Inz, 1990). Whereas depressive rumination is akin to the question of “why me?” in response to negative emotions, particularly sadness, worry is akin to the question of “what if?” in response to negative emotions, particularly anxiety.

Nolen-Hoeksema (1991) argued that depressive rumination prolongs and intensifies naturally occurring sadness and confers vulnerability to MDD (e.g., Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1991). Indeed, the tendency to engage in depressive rumination predicts the onset of major depressive episodes in adults (Nolen-Hoeksema, 2000) and college students (Just & Alloy, 1997). In attempts to further the understanding of depressive rumination, researchers examined a commonly used self-report measure of depressive rumination (i.e., Ruminative Response Scale; Nolen-Hoeksema & Morrow, 1991) and isolated a “brooding” factor, which was strongly related to MDD symptoms (Armey et al., 2009; Treynor, Gonzalez, & Nolen-Hoeksema, 2003).
Depressive rumination in the form of brooding entails passive, abstract, evaluative, and self-deprecating repetitive thoughts in response to sadness (e.g., “Why do I have problems other people don’t have?”; see Armey et al., 2009). As brooding in response to sadness is evaluative and judgmental in nature and may reflect discomfort with one’s feelings, this factor may be linked to negative meta-cognitive reactions to negative emotions. Indeed, Williams and colleagues (2007) proposed that individuals may engage in passive, evaluative repetitive thought when sad in attempts to “fix” their emotional experience and find an “answer” to the “problem” of sadness.

Worry has been theorized to be a deleterious process that prolongs negative mood states (e.g., Brosschot, Gerin, & Thayer, 2006) and maintains chronic anxiety (Borkovec, 1985). Individuals with GAD have been found to endorse greater pervasiveness of worry (Roemer, Molina, & Borkovec, 1997) and less perceived ability to control worry (Borkovec, Shadick, & Hopkins, 1991; Craske, Rapee, Jackel, & Barlow, 1989) as compared to individuals without GAD. Individuals with GAD have been found to engage in more worry than individuals with any other type of anxiety disorder (Brown, Antony, & Barlow, 1992). The tendency to engage in worry may be related to the desire to eliminate, control, or avoid difficult emotions (Borkovec, Alcaine, & Behar, 2004; Llera & Newman, 2007; Mennin, Heimberg, Turk, & Fresco, 2002; Mennin et al., 2005). As worry involves focusing on possible threat and is linked to discomfort with emotional experiences, this factor may be related to negative meta-cognitive reactions to negative emotions. Individuals who tend to engage in greater levels of worry may view negative emotions as threatening and harmful and may be concerned with the possible elicitation
of these experiences. Indeed, Salters-Pedneault and colleagues (2006) found that nonacceptance of negative emotions was associated with self-reported levels of worry. Furthermore, worry has been found to be associated with fear of losing control over one’s emotions (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005).

The Present Study

The current study will attempt to further elucidate meta-cognitive reactions to negative emotions as they relate to MDD, GAD, brooding, and worry. Given the theoretical debates regarding conceptualization and delineation of GAD (e.g., Mennin et al., 2008; Watson et al., 2008) and the very limited empirical findings regarding common and distinctive emotional factors between individuals with MDD and GAD, the current study will also explore potential commonalities and differences in meta-cognitive reactions to negative emotions among these two pathological subgroups.

Examining meta-cognitive reactions to negative emotions is still a relatively new area of psychopathological research. Very few studies have explored meta-cognitive reactions to negative emotions as they relate to GAD, with even fewer studies examining these reactions in relation to MDD. The present study aims to examine meta-cognitive reactions to negative emotions among three subgroups: 1) individuals with relatively high levels of current MDD symptoms who do not have relatively high levels of current GAD symptoms (i.e., MDD analogue group), 2) individuals with relatively high levels of current GAD symptoms irrespective of level of MDD symptoms (i.e., GAD analogue group), and 3) individuals with a relative absence of MDD and GAD symptoms (i.e.,
relatively healthy group). Attempts were not made to differentiate between GAD analogue individuals with and without substantial MDD symptoms for three reasons: 1) such a distinction is impractical in terms of feasibility of obtaining individuals with high levels of GAD symptoms who do not have substantial MDD symptoms, 2) theoretically, such a distinction may be artificial as individuals who are high in GAD symptoms may be naturally pre-disposed to experiencing MDD and/or symptoms common to MDD, and 3) there is overlap in terms of DSM-IV symptom criteria between GAD and MDD (e.g., difficulty concentrating, fatigue, psychomotor agitation, and sleep disturbance; American Psychological Association; 1994).

In accordance with previous theory regarding fear of emotions (Williams et al., 1997), negative cognitive reactivity to emotions (Mennin & Fresco, 2009), emotional distress tolerance (Clen et al., 2011), and lack of willingness to experience emotions (Hayes et al., 1999), the current study predicts that extent of negative beliefs and feeling regarding negative emotions (i.e., extent of negative meta-cognitive reactions to negative emotions) will be associated with anxiety and depressive pathology. Specific hypotheses are outlined below:

**Hypotheses.**

1. Individuals in the MDD analogue group and individuals in the GAD analogue group will exhibit a greater extent of negative meta-cognitive reactions to negative emotions, as assessed by structured interviews, than individuals who endorse a relative absence of MDD and GAD symptoms (i.e., relatively healthy group).
2a. Individuals in the MDD analogue group and individuals in the GAD analogue group will exhibit a greater extent of fear of negative emotions, as assessed by self-report, than individuals in the relatively healthy group.

2b. Individuals in the GAD analogue group will exhibit a greater extent of fear of negative emotions, as assessed by self-report, than individuals in the MDD analogue group. Theoretically, individuals with high levels of GAD symptoms may be more prone to focus on possible threat and harm, which could extend to viewing negative emotions as threatening, harmful, or indications that one is “losing control.”

3a. Individuals in the MDD analogue group and individuals in the GAD analogue group will exhibit less belief in their ability to engage in goal-directed behavior when distressed as well as less belief in their ability to repair negative mood, as assessed by self-report, than individuals in the relatively healthy group.

3b. Individuals in the MDD analogue group will exhibit less belief in their ability to engage in goal-directed behavior when distressed as well as less belief in their ability to repair negative mood, as assessed by self-report, than individuals in the GAD analogue group. Theoretically, individuals with high levels of MDD symptoms may be more prone to viewing themselves as incapable and helpless, which could extend to their perceived ability to ameliorate their negative emotions or engage in goal-directed behavior when experiencing negative emotions. Individuals with high levels of MDD symptoms may be more prone to reacting with disengagement and resignation to experiences that are perceived as difficult to handle (i.e., “giving up” when distressed).
4. The relationship between worry and extent of GAD symptoms will be moderated by fear of negative emotions such that higher levels of fear of negative emotions will strengthen this relationship.

5. The relationship between brooding and extent of MDD symptoms will be moderated by fear of negative emotions such that higher levels of fear of negative emotions will strengthen this relationship. For both hypotheses 4 and 5, the harmful effects of worry and brooding may be amplified by fear of negative emotions. Fear of negative emotions could perpetuate the maladaptive thought cycle as individuals focus on their emotional state as the personal inadequacy (e.g., as in brooding) or the source of threat (e.g., as in worrying) about which they are passively and repetitively thinking. Individuals who are highly fearful of their emotions could also incur more problematic consequences from passive, negatively-valenced repetitive thought such as prolonged negative mood states or less adaptive reflection on activating situations.

In terms of method of evaluating the above hypotheses, constructs reflecting negative meta-cognitive reactions to negative emotions have been examined using various self-report measures such as the Affective Control Scale (ACS; Berg et al., 1998; Williams et al., 1997), Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), Negative Mood Rating Scale (NMR; Catanzaro & Mearns 1990), Emotional Avoidance Questionnaire (EAQ; Taylor, Laposa, & Alden, 2004), and Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). The ACS (Berg et al., 1998; Williams et al., 1997) was selected for use in the present study as it most closely reflects the conceptualization of negative meta-cognitive reactions to negative emotions.
as discussed in the current study. The ACS will be employed in hypotheses 2a, 2b, 4, and 5 to assess fear of negative emotions. Two subscales of the DERS (Gratz & Roemer, 2004) will be used to assess hypotheses 3a and 3b. The DERS (Gratz & Roemer, 2004) has a subscale that examines beliefs about ability to engage in goal-directed behavior when distressed and a subscale that assesses beliefs about ability to effectively repair negative mood.

Only one non-self-report instrument relevant to meta-cognitive reactions to emotions, the Meta-Emotion Interview (MEI; Katz & Gottman, 1999), was found in a preliminary review of the literature. The MEI (Katz & Gottman, 1999) has been widely used to assess the “meta-emotion philosophy” of parents as it relates to child outcomes (e.g., Gottman et al., 1996; Katz & Hunter, 2007; Lagace-Seguin & Coplan, 2005; Shipman et al., 2007). Meta-emotion philosophy refers to an organized set of attitudes and feelings towards emotions, both one’s own emotions and one’s children’s emotions (Gottman et al., 1996). The current study is only interested in individuals’ “self-directed meta-emotion philosophy” or individuals’ attitudes and feelings towards their own negative emotions (see Gottman et al., 1996).

Multiple means of assessment (i.e., self-report and interview) will be undertaken to promote generalizability of findings. The present study will utilize the MEI in hypothesis 1. The MEI and relevant codes from the Meta-Emotion Coding System (Katz, Mittman, & Hooven, 1994) will be used to measure individuals’ extent of acceptance of negative emotions. In the MEI, the acceptance codes are reflective of an individual’s approval of and comfort with his or her own negative emotions (Katz et al., 1994). The
codes are rather limited in scope and range. Therefore, additional, more explicit, interview questions designed for the purposes of this study will also be implemented.
METHOD

Participants

Participants consisted of college students from a large Midwestern university in the United States who participated in partial fulfillment of course requirements. In order to be eligible for the study, participants demonstrated scores on screening measures that indicated the presence of significant MDD symptoms, significant GAD symptoms, or the relative absence of both MDD and GAD symptoms. Of the $n = 180$ individuals who participated in the study, 6 were not eligible for analysis due to reporting a history of being diagnosed with bipolar disorder and 4 were not eligible for analysis due to endorsing significant suicidal ideation that required further evaluation. The mean age of the sample was 20.08 years of age. The majority of participants were female (78.2%) and Caucasian (87.1%).

Procedure

Online screening.

Prospective participants were screened using the Quick Inventory of Depressive Symptomatology–Self Report (QIDS-SR16; Rush et al., 2003) and the Generalized Anxiety Disorder Questionnaire for DSM-IV (GAD-Q-IV; Newman et al., 2002).
Prospective participants completed the two screening measures via an online mass testing procedure open to psychology students or by accessing the measures through Sona Systems, which is a university-based, electronic study site for research in psychology.

It should be noted that the QIDS-SR16 includes an item assessing for suicidal ideation that was not administered during the online screening process. Participants who reported relatively high levels of MDD symptoms as indicated by QIDS-SR16 scores of \( \geq 12 \) were contacted via email or phone and invited to participate in the study. Participants who endorsed relatively high levels of GAD symptoms as indicated by GAD-Q-IV scores of \( \geq 7.67 \) and who also endorsed the quantity and type of symptoms required though the criterion-based scoring method of this measure were also contacted via email or phone and invited to participate in the study. Finally, individuals who demonstrated a relative absence of MDD and GAD symptoms (i.e., QIDS-SR16 scores of \( \leq 5 \) and GAD-Q-IV scores of \( \leq 1 \)) were invited to participate in the study. Scores on the two online screening measures were used as preliminary indicators of MDD and GAD symptoms and were not utilized in further analyses.

**Laboratory study.**

Participants were tested individually in a quiet room with a comfortable chair. Participants were asked to report the following demographic information: age, gender, and ethnicity. Participants also answered a mental health question inquiring as to whether they had ever been diagnosed with bipolar disorder, which would preclude their data from being used in analysis as the current study is interested in MDD. Participants completed a battery of computer-administered, self-report measures using Remark Web
Survey. The self-report measures assessed different aspects of emotional functioning, brooding, worry, and symptoms of MDD and GAD. Participants then underwent an interview about their experiences of and attitudes towards negative emotions using the Meta-Emotion Interview (MEI; Katz & Gottman, 1999) and the additional closed-ended interview questions developed for this study. The MEI was audiotaped for coding purposes.

**Measures**

**Screening measures.**

**MDD symptoms.**

Individuals were screened for MDD symptoms in order to assess for study eligibility using the *Quick Inventory of Depressive Symptomatology–Self Report* (QIDS-SR16; Rush et al., 2003). The QIDS-SR16 is a 16-item self-report measure designed to evaluate the nine domains of a major depressive episode as defined by the *Diagnostic and Statistical Manual for Mental Disorders, 4th Edition* (DSM-IV; American Psychiatric Association, 1994). The QIDS-SR16 measures the nine criterion domains of a major depressive episode through sixteen items. Four items evaluate the sleep disturbance in terms of early, middle, and late insomnia as well as hypersomnia. Four items measure appetite or weight disturbance in the form of decreased appetite, increased appetite, weight decrease, and weight increase. Two items assess psychomotor disturbance in the form of retardation and agitation. Finally, six items are allocated to the remaining six
domains of a major depressive episode: depressed mood, anhedonia, fatigue, feelings of worthlessness or guilt, difficulty concentrating or making decisions, and suicidal ideation.

Responses options for each item range from 0 to 3 with 0 being denial of any level of the symptom (e.g., fatigue: “There is no change in my usual level of energy”) and 3 being endorsement of a severe level of the symptom (e.g., fatigue: “I really cannot carry out most of my usual daily activities because I just don’t have the energy”). A score is derived for each of the nine domains, which are then added to compile a total score, ranging from ranging from 0 to 27 (Rush, Carmody, & Reimitz, 2000). In instances in which there is more than one item in a domain, the domain item with the highest score is used as the representative score for that domain.

The following guidelines were put forth by Rush and colleagues (2003) for estimating the level of severity of MDD symptoms using the QIDS-SR16: none (0–5), mild (6–10), moderate (11–15), severe (16–20), and very severe (≥ 21). Further research has found cutoff scores ranging between 13 and 14 to be the most useful in terms of sensitivity and specificity in identifying individuals suffering from MDD (Lamoureux et al., 2010). Given that one item assessing for suicidal ideation was omitted during online screening, the current study used QIDS-SR16 scores of ≥ 12 as indicative of a relatively high level of MDD symptoms for screening individuals into the study. In addition, for screening purposes QIDS-SR16 scores of ≤ 5 were used as an indicator of the relative absence of MDD symptoms.
GAD symptoms.

Individuals were screened for GAD symptoms in order to assess for study eligibility using the Generalized Anxiety Disorder Questionnaire-IV (GAD-Q-IV; Newman et al., 2002). The GAD-Q-IV is a 9-item self-report measure designed to assess symptoms of GAD as established by the DSM-IV (American Psychiatric Association, 1994). The GAD-Q-IV includes five dichotomous items assessing for the presence of excessive and uncontrollable worry (e.g., “Is your worry excessive in intensity, frequency, or amount of distress it causes?”) to which individuals respond yes or no. The GAD-Q-IV also assesses for the presence of the physical symptoms of GAD: restlessness, difficulty concentrating, irritability, being easily fatigued, muscle tension, and sleep disturbance. The GAD-Q-IV has one open-ended question asking individuals to list the topics about which they worry excessively and uncontrollably. In addition, there are two dimensional questions that measure individuals’ beliefs about the extent to which they are impaired in functioning due to GAD symptoms and how distressed they are by these symptoms, respectively. Individuals rate the extent of their impairment and distress on an 8-point scale. Newman and colleagues (2002) found a high agreement (κ = .67) between diagnoses of GAD as determined by the GAD-Q-IV and diagnoses of GAD as determined by the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown, DiNardo, & Barlow, 1994).

To score the GAD-Q-IV a criterion-based method has been utilized in which item endorsement was compared to DSM-IV symptoms in order to determine whether an individual likely met diagnostic criteria for GAD (Newman, Zuellig, Kachin,
Constantino, & Cashman, 2001). Researchers found that the use of a criterion-based scoring method provided good sensitivity and specificity in classifying individuals who met diagnostic criteria for GAD as determined by diagnostic interview (e.g., Barnes et al., 2005; Haigh et al., 2006). In addition to criterion-based scoring, Newman and colleagues (2002) proposed a weighted, dimensional scoring method with possible scores ranging from 0 to 13. Originally, a cutoff score of 5.7 was identified by Newman and colleagues (2002) as the most useful in identifying a probable case of GAD. However, further research indicated that 7.67 was the most useful cutoff score in terms of specificity and sensitivity in identifying individuals suffering from GAD as determined by diagnostic interview (e.g., Barnes, Haigh, & Fresco, 2005; Haigh et al., 2006). In order to be conservative regarding individuals who would be considered to be experiencing a significant level of GAD symptoms, the current study utilized both criterion-based and dimensional scoring methods. For screening purposes, individuals were considered to be experiencing a relatively high level of GAD symptoms if they demonstrated GAD-Q-IV scores of ≥ 7.67 and also met or exceeded the number and type of symptoms required by the criterion-based scoring method. In addition, GAD-Q-IV scores of ≤ 1 were used as an indicator of the relative absence of GAD symptoms during screening. A cutoff score of 1 was selected as this score was reflective of the lowest 25% of GAD-Q-IV scores based on data available from the mass testing procedure for psychology students (n = 849).
Laboratory measures.

MDD symptoms.

Individuals were assessed for MDD symptoms during the laboratory study using the QIDS-SR16 (Rush et al., 2003). Two dimensional items were added to this measure in order to evaluate extent of functional impairment and distress related to MDD symptoms. These items were analogous to the impairment and distress items on the GAD-Q-IV and required participants to make ratings regarding extent of impairment and distress on an 8-point scale.

Scores on the QIDS-SR16 were used in conjunction with scores on the GAD-Q-IV to determine group membership during relevant analyses. Individuals were considered to be experiencing a relatively high level of MDD symptoms if they demonstrated QIDS-SR16 scores ≥ 13 in the laboratory study. Individuals were considered to be experiencing a relative absence of MDD symptoms if they demonstrated QIDS-SR16 scores ≤ 5.

GAD symptoms.

Individuals were assessed for GAD symptoms during the laboratory study using the GAD-Q-IV (Newman et al., 2002). As in screening, individuals were considered to be experiencing a relatively high level of GAD symptoms if they reported GAD-Q-IV scores ≥ 7.67 and they also endorsed the number and type of symptoms required by the criterion-based scoring method. GAD-Q-IV scores of ≤ 1 were considered to reflect the relative absence of GAD symptoms during analysis.
Meta-cognitive reactions to negative emotions.

The Affective Control Scale (ACS; Berg et al., 1998; Williams et al., 1997) is a 42-item self-report measure that assesses fear of emotions or apprehension about losing control over one’s emotions and reacting problematically during emotional experiences (Williams et al., 1997). Individuals who are highly fearful of their emotions view themselves as incapable of experiencing emotions without incurring harmful or undesired consequences. The ACS has three subscales of interest to the current study: fear of anxiety (e.g., “Once I get nervous, I think that my anxiety might get out of hand”), fear of depression (e.g., “When I start feeling ‘down,’ I think I might let the sadness go too far”), and fear of anger (e.g., “I am concerned that I will say things I'll regret when I get angry”). Participants rate their agreement with statements using a 7-point Likert-type scale. Williams and colleagues (1997) reported a high internal consistency for the ACS (α = .94). Internal consistency in the current study was very good (α = .93) for a composite of the three subscales assessing fear of negative emotions.

Although the ACS is highly relevant for the current study, the terminology used in the fear of depression subscale, including the name of the subscale itself, is potentially problematic. The fear of “depression” subscale uses “depressed” as an interchangeable term with “down,” “the blues,” and “sadness.” However, the term “depressed” has other common connotations other than being a synonym for sad; it is also used to describe individuals who are experiencing a major depressive episode. As individuals in the current study may have a history of MDD, it is important that the experience of a major
depressive episode, which inherently entails maladaptive functioning, is not assumed to be synonymous with the experience of naturally-occurring sadness.

Terminology on the fear of depression subscale was modified for the purposes of the current study in order to ensure that the scale measures fear of sadness, not fear of a major depressive episode. There are 6 items on the ACS that include the words “depression” or “depressed.” These terms were replaced with “sadness” and “sad,” respectively. For instance, the ACS item that originally read “Being depressed is not so bad because I know it will soon pass” was modified to read “Being sad is not so bad because I know it will soon pass.” The modified fear of depression subscale was referred to as the fear of sadness subscale for the purposes of this study. To examine preliminary indicators of reliability and validity, the fear of sadness subscale was given in the mass testing procedure for psychology students (n = 954). Internal consistency for the fear of sadness scale was very good (α = .89) and the scale demonstrated expected positive relationships with MDD symptoms (r = .61) as measured by the Center for Epidemiological Studies Depression (CES-D; Radloff, 1977).

The Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item self-report measure that assesses individuals’ beliefs about how they function during negative emotional experiences. When referring to negative emotional experiences, the DERS uses the term “upset” rather than specifying a particular negative emotion. The DERS has six separate subscales assessing different aspects of emotional functioning. The two subscales that will be used in the current study are the subscales that assess: 1) beliefs regarding ability to repair negative moods (i.e., Strategies subscale), and
2) beliefs regarding ability to engage in goal-directed behavior when distressed (i.e., Goals subscale). The Strategies subscale consists of 8 items (e.g., “When I’m upset, I believe that there is nothing I can do to make myself feel better”) and the Goals subscale consists of 5 items (e.g., “When I’m upset, I have difficulty getting work done”).

Participants rate their agreement with statements using a 5-point Likert-type scale. Gratz and Roemer (2004) reported a high internal consistency for the DERS (α = .93). Internal consistency in the current study was very good for the Strategies subscale (α = .92) and for the Goals subscale (α = .92).

The Meta-Emotion Interview (MEI; Katz & Gottman, 1999) is a semi-structured interview designed to assess individuals’ attitudes, thoughts, and feelings regarding their negative emotions. Questions on the MEI are open-ended. Sample questions include: “What is it like for you to be sad?”, “What do you think about when you’re sad?”, and “What do you think of sadness in general?” The same set of questions is posed for each negative emotion. Traditionally, the MEI assesses for attitudes and feelings towards sadness, anger, and fear. For the purposes of the current study, the MEI was used to assess attitudes and feelings towards sadness, anger, and anxiety so that the negative emotion domains were the same as those assessed by the ACS. Responses to the interview were audio-taped and then coded using relevant codes from the Meta-Emotion Coding System (Katz et al., 1994). The Meta-Emotion Coding System has been reported to have adequate inter-rater reliability as well as concurrent, predictive, and discriminant validity (Gottman et al., 1996; Hooven, Gottman, & Katz, 1995; Katz & Windecker-Nelson, 2001). A coder was trained on the coding system by coding audio-tapes of
example interviews. The coder established reliability using the coding system as evidenced by correlations of $r \geq 0.7$ between the coder’s rating scales and the training rating scales (see Katz et al., 1994). An additional trained coder was utilized to determine inter-rater reliability for a subset of the sample ($n = 50$). Inter-rater reliability was strong (intraclass $r = .83$) for the overall rating of inferred negative meta-cognitive reactions to negative emotions. Inter-rater reliability for the emotion subscales was very good for the inferred negative meta-cognitive reactions to sadness subscale (intraclass $r = .81$) and for the inferred negative meta-cognitive reactions to anxiety subscale (intraclass $r = .80$), and adequate for the inferred negative meta-cognitive reactions to anger subscale (intraclass $r = .69$).

The Meta-Emotion Coding System (Katz et al., 1994) is designed to evaluate awareness and understanding of negative emotions, acceptance of negative emotions, and problems in the management of negative emotions. The dimension of acceptance of negative emotions is relevant to the current study. Acceptance is assessed by the coder rating his or her agreement with statements as they pertain to the interviewee (e.g., “Participant accepts this emotion as having value or being part of life”). The coder rates extent of agreement with the statements based on impressions derived from the participant’s interview on a 3-point scale: disagree, neutral, agree. For instance, for the aforementioned statement the coder would rate disagree if the person expressed strong disapproval of or discomfort with the emotion during the interview (e.g., “I don't waste my time on anger…it's pointless”).
Although there is a subset of items that may be used to assess acceptance, the actual acceptance items included in analyses are highly variable among research studies (e.g., Hunter et al., 2011; Katz & Hunter, 2007; Topham, Wampler, Titus, & Rolling, 2011; Yap, Allen, Leve, & Katz, 2008). Indeed, some of the acceptance items were inapplicable for the research question in the current study. The present study made use of the following three established acceptance items that reflected meta-cognitive reactions to negative emotions: 1) Participant accepts this emotion (it has value, it’s part of life), 2) Participant feel comfortable with his or her expression of the emotion, and 3) Participant emphasizes the importance of controlling the emotion due to viewing the emotion as potentially harmful or dangerous (reverse-scored). Rating scores on these three items were averaged to create a mean “inferred negative meta-cognitive reactions” rating for sadness, anger, and anxiety. An overall “inferred negative meta-cognitive reactions to negative emotions” rating was calculated from the average of these three ratings.

The established MEI codes are rather limited in content (i.e., three applicable statements) and range (e.g., 1-3). Therefore, in addition to the open-ended MEI questions and ratings based on general impressions, the current study made use of additional closed-ended interview questions and explicit ratings. The current study directly asked individuals the extent to which they agreed with certain statements in regards to their emotional experiences (e.g., How much do you agree with the following statement- “Sadness could make me make decisions I will regret”; see Appendix for interview questions). Participants rated their agreement orally from strongly disagree to strongly agree (1= strongly disagree, 5=strongly agree) and provided explanations of their
answers. Twenty close-ended questions covering a range of different aspects of negative meta-cognitive reactions to negative emotions (e.g., fear of emotion, beliefs about ability to repair mood) were asked for each emotion: sadness, anger, and anxiety. Scores for each emotion were averaged to create a mean “explicit negative meta-cognitive reactions” rating for sadness, anger, and anxiety. An overall “explicit negative meta-cognitive reactions to negative emotions” rating was calculated from the average of these three ratings. Internal consistency for the composite of the three emotion rating scales was very good (α = .93).

**Brooding.**

The *Ruminative Response Scale* (RRS; Nolen-Hoeksema & Morrow, 1991) is a self-report measure that assesses individuals’ beliefs about the extent to which they engage in depressive rumination in response to sadness. Participants rate their agreement with statements using a 4-point Likert-type scale. In attempts to further the understanding of depressive rumination, researchers examined the RRS and isolated a “brooding” factor, which was strongly related to MDD symptoms (Armey et al., 2009; Treynor et al., 2003). The 5 brooding items reflect passive, abstract, evaluative, and self-depreciating repetitive thoughts in response to sadness (e.g., “Why do I have problems other people don’t have?”; see Armey et al., 2009). Armey and colleagues (2009) reported acceptable internal consistency for the brooding subscale (α = .78). Internal consistency in the current study was very good (α = .85).

The instructions of the RRS pose a similar problem as the wording of the ACS. The RRS instructions interchangeably use the terms “down,” “sad,” and “depressed.” As
stated previously, the current study aims to ensure that attitudes towards sadness are not confounded with attitudes towards experiencing a major depressive episode. The word “depressed” appears twice in the RRS instructions. The word depressed was removed from the instructions and replaced with the word “sad” where appropriate. To examine preliminary indicators of reliability and validity, the brooding items with the modified RRS instructions were given in the mass testing procedure for psychology students ($n = 954$). Internal consistency for the brooding subscale was very good ($\alpha = .82$) and demonstrated the expected positive relationships with MDD symptoms as measured by the CES-D ($r = .54$).

**Worry.**

The *Penn State Worry Questionnaire* (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item self-report measure that assesses individuals’ beliefs about the extent to which they generally tend to engage in excessive (e.g., “I am always worried about something”) and uncontrollable worry (e.g., “Once I start worrying, I can’t stop”). Participants rate their agreement with the items on a 5-point Likert-type scale. The PSWQ has high internal consistency ($\alpha = .86 - .95$; see Molina & Borkovec, 1994 for a review). Internal consistency in the current study was very good ($\alpha = .95$).
RESULTS

Group Membership

Group membership was determined by scores on measures administered during the laboratory study as follows: 1) the MDD analogue group consisted of participants with scores of \( \geq 13 \) on the QIDS-SR16 (Rush et al., 2003) and < 5.7 on the GAD-Q-IV (Newman et al., 2002), 2) the GAD analogue group consisted of participants with scores of \( \geq 7.67 \) on GAD-Q-IV who also met or exceeded the number and type of required symptoms as assessed by the criterion-based scoring method of this measure, and 3) the relatively healthy group consisted of participants with scores of \( \leq 5 \) on the QIDS-SR16 and \( \leq 1 \) on the GAD-Q-IV. Of the 170 individuals who were screened into the study and eligible for analysis, 75 were eligible for group membership based on the above criteria.

Demographic information.

All three groups were composed of predominantly female participants. However, chi-square analyses found that gender distributions were not equivalent among the three groups, \( \chi^2 (2, n = 75) = 7.23, p = .027 \), with the GAD analogue group having a higher percentage of females and the relatively healthy group having a lower percentage of females than would be expected. The three groups were also predominantly Caucasian, with no significant differences in this regard, \( \chi^2 (2, n = 75) = .770, p = .681 \). The mean
age was less than 21 for all groups and a one-way ANOVA found that the groups did not significantly differ in mean age, $F(2, 72) = 1.62, p = .21$. Table 1 displays demographic information for the groups.

Table 1.

*Demographic and Clinical Information among Groups*

<table>
<thead>
<tr>
<th></th>
<th>MDD ($n = 11$)</th>
<th>GAD ($n = 33$)</th>
<th>Relatively Healthy ($n = 31$)</th>
</tr>
</thead>
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<tr>
<td>Gender (% female)</td>
<td>81.80</td>
<td>93.90</td>
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<td>Ethnicity (% Caucasian)</td>
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<td>Age (years)</td>
<td>19.36 (2.06)</td>
<td>20.88 (4.45)</td>
<td>19.52 (2.13)</td>
</tr>
</tbody>
</table>

**Symptoms of psychopathology.**

To ensure that the groups demonstrated the expected symptom profiles, one-way ANOVAs followed by planned contrasts were utilized to examine differences in MDD and GAD symptoms. Table 2 displays descriptive information for variables of interest.
Table 2.
Descriptive Information for Variables of Interest

<table>
<thead>
<tr>
<th></th>
<th>MDD $(n = 11)$</th>
<th>GAD $(n = 33)$</th>
<th>Relatively Healthy $(n = 31)$</th>
<th>Full Sample $(n = 170)$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>$M (SD)$</td>
<td>$M (SD)$</td>
<td>$M (SD)$</td>
<td>$M (SD)$</td>
</tr>
<tr>
<td>MDD Symptoms</td>
<td>14.36 (.92)</td>
<td>11.21 (3.67)</td>
<td>2.42 (1.54)</td>
<td>8.00 (4.60)</td>
</tr>
<tr>
<td>GAD Symptoms</td>
<td>3.70 (1.33)</td>
<td>10.58 (1.01)</td>
<td>.30 (.40)</td>
<td>4.89 (3.75)</td>
</tr>
<tr>
<td>Severity of Impairment related to MDD Symptoms</td>
<td>3.73 (1.68)</td>
<td>3.91 (1.42)</td>
<td>.39 (.84)</td>
<td>2.41 (1.84)</td>
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<tr>
<td>Severity of Distress related to MDD Symptoms</td>
<td>3.55 (2.02)</td>
<td>4.06 (1.37)</td>
<td>.26 (.51)</td>
<td>2.36 (1.91)</td>
</tr>
<tr>
<td>Severity of Impairment related to GAD Symptoms</td>
<td>3.64 (1.21)</td>
<td>4.70 (1.13)</td>
<td>.65 (.80)</td>
<td>2.71 (1.77)</td>
</tr>
<tr>
<td>Severity of Distress related to GAD symptoms</td>
<td>3.55 (1.29)</td>
<td>4.73 (.98)</td>
<td>.48 (.63)</td>
<td>2.76 (1.81)</td>
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<tr>
<td>Inferred: Negative Meta-Cognitive Reactions to Negative Emotions</td>
<td>2.54 (.26)</td>
<td>2.60 (.28)</td>
<td>2.25 (.48)</td>
<td>2.42 (.42)</td>
</tr>
<tr>
<td>Explicit: Negative Meta-Cognitive Reactions to Negative Emotions</td>
<td>2.48 (.44)</td>
<td>2.44 (.34)</td>
<td>1.80 (.30)</td>
<td>2.19 (.44)</td>
</tr>
<tr>
<td>Fear of Negative Emotions</td>
<td>3.81 (.96)</td>
<td>3.86 (.52)</td>
<td>2.39 (.48)</td>
<td>3.30 (.83)</td>
</tr>
<tr>
<td>Difficulties Engaging in Goal-Directed Behavior When Upset</td>
<td>3.46 (.55)</td>
<td>3.68 (.89)</td>
<td>1.91 (.64)</td>
<td>2.89 (1.06)</td>
</tr>
<tr>
<td>Difficulties Repairing Negative Mood</td>
<td>2.39 (.84)</td>
<td>2.53 (.88)</td>
<td>1.13 (.14)</td>
<td>1.97 (.88)</td>
</tr>
<tr>
<td></td>
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<tr>
<td>--------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Worry</td>
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<tr>
<td>Brooding</td>
<td>1.77 (.76)</td>
<td>1.70 (.56)</td>
<td>.55 (.54)</td>
<td>1.34 (.83)</td>
</tr>
</tbody>
</table>

*Note.* MDD symptoms were measured by the QIDS-SR16. GAD symptoms were measured by the GAD-Q-IV. Two items were added to the QIDS-SR16 to examine self-reported functional impairment (item 17) and distress (item 18) due to MDD symptoms on a scale of 0-8. Two items on the GAD-Q-IV were utilized to examine self-reported functional impairment (item 8) and distress (item 9) due to GAD symptoms on a scale of 0-8. Inferred negative meta-cognitive reactions to negative emotions were assessed by the MEI coding system as applied to the open-ended MEI interview. Explicit negative meta-cognitive reactions to negative emotions were assessed by the closed-ended emotion interview questions. Fear of negative emotions was measured by the ACS. Difficulties engaging in goal-directed behavior when upset was measured by the Goals subscale of the DERS and difficulties repairing negative mood was measured by the Strategies subscale of the DERS. Worry was assessed by the PSWQ. Brooding was assessed via established items from the RRS.
It was expected that individuals in the MDD analogue group would demonstrate the highest level of MDD symptoms. A one-way ANOVA found significant group differences in MDD symptoms among the three groups, $F(2, 72) = 123.23, p < .001$, Cohen’s $f = 1.85$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Table 3 displays the planned contrast coefficients. Consistent with expectations, planned contrasts showed a large effect for individuals in the MDD analogue group to endorse a higher level of MDD symptoms as compared to individuals in the relatively healthy group, $t(29.85) = 30.38, p < .001$, Cohen’s $d = 11.12$, and individuals in the GAD analogue group, $t(40.63) = 4.52, p < .001$, $d = 1.42$. As expected, individuals in the MDD analogue group evidenced the highest level of MDD symptoms as compared to individuals in the other two groups.

Additionally, individuals in the GAD analogue group were expected to evidence the highest level of GAD symptoms. A one-way ANOVA found significant group differences in GAD symptoms among the three groups, $F(2, 72) = 1132.78, p < .001, f = 5.59$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Consistent with predictions, planned contrasts found a large effect for individuals in the GAD analogue group to report a higher level of GAD symptoms as compared to individuals in the relatively healthy group, $t(42.30) = 54.38, p < .001, d = 16.72$, and individuals in the MDD analogue group, $t(14.02) = 15.74, p < .001, d = 8.41$. As expected, individuals in the GAD analogue group evidenced a significantly higher level of GAD symptoms as compared to individuals in the other two groups.
Table 3.  
*Planned Non-orthogonal Contrast Coefficients for Symptoms of Psychopathology, Distress, and Functional Impairment among Groups*

<table>
<thead>
<tr>
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<th>MDD Analogue</th>
<th>GAD Analogue</th>
<th>Relatively Healthy</th>
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</thead>
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<td>MDD Symptoms</td>
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<td>-1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>GAD Symptoms</td>
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<td>1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Severity of Impairment related to MDD Symptoms</td>
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<td>0</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Severity of Distress related to MDD Symptoms</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>Severity of Impairment related to GAD Symptoms</td>
<td>0</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Severity of Distress related to GAD symptoms</td>
<td>0</td>
<td>1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
**Impairment and distress due to symptoms of psychopathology.**

Self-reported functional impairment and distress were also examined to elucidate the extent to which individuals in the different groups were negatively impacted by symptoms of psychopathology. Two items on the QIDS-SR16 were utilized to examine functional impairment (item 17) and distress (item 18) due to MDD symptoms. These items were analogous to the impairment and distress items on the GAD-Q-IV. It was expected that individuals in the MDD analogue group would endorse a higher level of impairment and distress due to MDD symptoms as compared to the relatively healthy group. No specific predictions were made regarding differences in extent of functional impairment and distress due to MDD symptoms between the two clinical analogue groups, given that both groups could include individuals with significant MDD symptoms and both groups were likely to experience general impairment and distress.

Functional impairment due to MDD symptoms was evaluated through a one-way ANOVA, which found significant differences among the three groups, $F(2, 72) = 69.34$, $p < .001$, $f = 1.39$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Consistent with predictions, a planned contrast showed a large effect for individuals in the MDD analogue group to endorse a greater extent of functional impairment due to MDD symptoms as compared to individuals in the relatively healthy group, $t(11.84) = 6.32$, $p < .001$, $d = 3.67$. A planned contrast did not find a significant difference in extent of functional impairment due to MDD symptoms in the MDD analogue group as compared to the GAD analogue group, $t(15.09) = -.32$, $p = .75$, $d = .17$. While individuals in the MDD analogue group endorsed
a greater extent of functional impairment due to MDD symptoms than individuals in the relatively healthy group, the two clinical groups appeared to endorse a relatively equivalent level of impairment due to MDD symptoms.

A one-way ANOVA found significant group differences in distress due to MDD symptoms among the three groups, $F(2, 72) = 82.14, p < .001, f = 1.51$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. As expected, a planned contrast found a large effect for individuals in the MDD analogue group to endorse a greater level of distress due to MDD symptoms as compared to individuals in the relatively healthy group, $t(10.46) = 5.34, p < .001, d = 3.30$. A planned contrast did not find a significant difference in distress due to MDD symptoms in the MDD analogue group as compared to the GAD analogue group, $t(13.20) = -.79, p = .44, d = .44$. Although individuals in the MDD analogue group endorsed a greater extent of distress due to MDD symptoms than individuals in the relatively healthy group, the two clinical groups appeared to endorse a relatively equivalent level of distress due to MDD symptoms.

Two items on the GAD-Q-IV were utilized to examine self-reported functional impairment (item 8) and distress (item 9) due to GAD symptoms. It was expected that individuals in the GAD analogue group would report a higher level of impairment and distress due to GAD symptoms as compared to individuals in the relatively healthy group. It was also predicted that individuals in the GAD analogue group would report a higher level of impairment and distress due to GAD symptoms as compared to individuals in MDD analogue group, given that individuals with significant GAD
symptoms were excluded from the MDD analogue group. A one-way ANOVA found significant group differences in functional impairment due to GAD symptoms among the three groups, $F(2, 72) = 130.30, p < .001, f = 1.91$. All contrasts utilized the assumption of equal variances as indicated by the Levene’s test for homogeneity of variances. As expected a planned contrast showed a large effect for individuals in the GAD analogue group to endorse a greater level of functional impairment due to GAD symptoms as compared to individuals in the relatively healthy group, $t(72) = 15.91, p < .001, d = 3.75$. There was also a medium to large effect for individuals in the GAD analogue group to report a higher level of functional impairment due to GAD symptoms as compared to individuals in the MDD analogue group, $t(72) = 2.99, p = .004, d = .71$.

A one-way ANOVA investigating distress due to GAD symptoms found significant differences among the three groups, $F(2, 72) = 179.95, p < .001, f = 2.23$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Planned contrasts revealed a large effect for individuals in the GAD analogue group to endorse more distress due to GAD symptoms as compared to individuals in the relatively healthy group, $t(54.88) = 20.82, p < .001, d = 5.62$, and individuals in the MDD analogue group, $t(14.01) = 2.78, p = .015, d = 1.49$. Overall, individuals in the GAD analogue group endorsed higher levels of impairment and distress due to GAD symptoms than individuals in the other two groups.
Hypothesis 1: Negative Meta-Cognitive Reactions to Negative Emotions

Hypothesis 1 posited that individuals in the MDD analogue group and individuals in the GAD analogue group would exhibit a greater extent of negative meta-cognitive reactions to negative emotions than individuals in the relatively healthy group. Negative meta-cognitive reactions to negative emotions were assessed by two means: 1) inferred negative meta-cognitive reactions to negative emotions as assessed by the MEI Coding System (Katz et al., 1994) as applied to the open-ended MEI interview (MEI; Katz & Gottman, 1999) and 2) explicit negative meta-cognitive reactions to negative emotions as assessed by the closed-ended emotion interview questions. Hypothesis 1 was examined using one-way ANOVAs followed by a priori non-orthogonal contrasts (see Table 4). Due to the similarity in the two dependent variables, hypothesis 1 required a family-wise Bonferroni correction of \( \alpha/2 \). To estimate the necessary sample size for hypothesis 1, a power analysis was conducted. Cohen’s (1992) conventions for effect size were used. An analysis with power set to .80 and alpha set to .025 (i.e., Bonferroni correction of \( \alpha/2 \)), indicated that a sample of \( n = 155 \) would detect group mean differences of a medium magnitude (\( f = .25 \)) for the planned contrasts. With a sample of \( n = 75 \), this analysis possessed a power of .45 to detect medium effect sizes and a power of .80 to detect effect sizes as small as Cohen’s \( f = .36 \) (i.e., medium to large effect size).
Table 4.
*Planned Non-orthogonal Contrast Coefficients for Hypotheses 1-3*

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>MDD Analogue</th>
<th>GAD Analogue</th>
<th>Relatively Healthy</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>2a.</td>
<td>1</td>
<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>2b.</td>
<td>-1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3a.</td>
<td>1</td>
<td>1</td>
<td>-2</td>
</tr>
<tr>
<td>3b.</td>
<td>1</td>
<td>-1</td>
<td>0</td>
</tr>
</tbody>
</table>

A one-way ANOVA examining hypothesis 1 found significant group differences regarding extent of inferred negative meta-cognitive reactions to negative emotions, $F(2, 72) = 7.49, p < .001, f = .46$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Consistent with expectations, a planned contrast showed a large effect for the MDD and GAD analogue groups to demonstrate a greater extent of inferred negative meta-cognitive reactions to negative emotions as compared to the relatively healthy group, $t(43.79) = 3.29, p = .002, d = .99$.

A one-way ANOVA examining explicit negative meta-cognitive reactions to negative emotions also found significant group differences, $F(2, 72) = 33.63, p < .001, f = .97$. All contrasts utilized the assumption of equal variances as indicated by the Levene’s test for homogeneity of variances. In support of hypothesis 1, a planned contrast found a large effect for the MDD and GAD analogue groups to demonstrate a greater extent of explicit negative meta-cognitive reactions to negative emotions as
compared to the relatively healthy group, $t(72) = 7.78, p < .001, d = 1.83$. Overall, hypothesis 1 was supported as individuals in the two clinical groups were found to hold more negative attitudes and feelings regarding their own emotional experiences than individuals in the relatively healthy group.

**Hypotheses 2a-b: Fear of Negative Emotions**

Hypothesis 2a stated that individuals in the MDD analogue group and individuals in the GAD analogue group would exhibit a greater level of fear of negative emotions than individuals in the relatively healthy group. Hypothesis 2b proposed that individuals in the GAD analogue group would exhibit a greater level of fear of negative emotions than individuals in the MDD analogue group. Fear of negative emotions was assessed by the ACS (Berg et al., 1998; Williams et al., 1997). Hypotheses 2a and 2b were examined using a one-way ANOVA followed by a priori non-orthogonal contrasts. A power analyses with alpha set to .05 and power set to .80 indicated that a sample of $n = 128$ would to detect group mean differences of a medium magnitude ($f = .25$) for the planned contrasts. With a sample of $n = 75$, this analysis possessed a power of .57 to detect medium effect sizes and a power of .80 to detect effect sizes as small as Cohen’s $f = .33$ (i.e., medium to large effect size).

A one-way ANOVA examining fear of negative emotions revealed significant group differences, $F(2, 72) = 55.95, p = .000, f = 1.25$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Hypothesis 2a was supported as a planned contrast demonstrated a large effect
for individuals in the MDD and GAD analogue groups to endorse a greater extent of fear of negative emotions as compared to individuals in the relatively healthy group, \( t(20.18) = 8.30, p < .001, d = 3.70 \). Contrary to predictions in Hypothesis 2b, individuals in the GAD analogue group did not exhibit a greater level of fear of negative emotions than individuals in the MDD analogue group, \( t(12.07) = .17, p = .87, d = .10 \). In summary, the two clinical groups reported roughly equivalent levels of apprehension about losing control over emotions and reacting problematically during emotional experiences, but demonstrated significantly more concerns in this area than the relatively healthy group.

**Hypotheses 3a-b: Beliefs regarding Coping Abilities when Distressed**

Hypothesis 3a proposed that individuals in the MDD analogue group and individuals in the GAD analogue group would exhibit less belief in their ability to engage in goal-directed behavior when distressed as well as less belief in their ability to repair negative moods than individuals in the relatively healthy group. Hypothesis 3b indicated that individuals in the MDD analogue group would exhibit less belief in their ability to engage in goal-directed behavior when distressed as well as less belief in their ability to repair negative moods, than individuals in the GAD analogue group. Belief in one’s ability to engage in goal-directed behavior when distressed was assessed by the Goals subscale of the DERS (Gratz & Roemer; 2004) and belief in one’s ability to repair negative moods was assessed by the Strategies subscale of the DERS. Hypotheses 3a and 3b were examined using one-way ANOVAs followed by a priori non-orthogonal contrasts. Due to the similarity in dependent variables, hypotheses 3a and 3b required
family-wise Bonferroni corrections of α/2. For hypotheses 3a and 3b, an analysis with power set to .80 and alpha set to .025 (i.e., Bonferroni correction of α/2), indicated that a sample of $n = 155$ would detect group mean differences of a medium magnitude ($f = .25$) for the planned contrasts. With a sample of $n = 75$, this analysis possessed a power of .45 to detect medium effect sizes and a power of .80 to detect effect sizes as small as Cohen’s $f = .36$ (i.e., medium to large effect size).

A one-way ANOVA examining belief in one’s ability to engage in goal-directed behavior when distressed found significant group differences, $F(2, 72) = 47.92, p < .001, f = 1.15$. A one-way ANOVA also displayed significant group differences in belief in ability to repair negative mood when distressed, $F(2, 72) = 37.21, p < .001, f = 1.02$. All contrasts utilized the assumption of unequal variances as indicated by the Levene’s test for homogeneity of variances. Consistent with predictions in hypothesis 3a, planned contrasts found a large effect for individuals in the MDD and GAD analogue groups to endorse less belief in their ability to engage in goal-directed behavior when distressed, $t(58.26) = 10.31, p < .001, d = 2.70$, and less belief in their ability to repair negative mood, $t(19.04) = 8.81, p < .001, d = 4.04$, than individuals in the relatively healthy group. Contrary to predictions in Hypothesis 3b, planned contrasts revealed that individuals in the MDD analogue group did not report less belief in their ability to engage in goal-directed behavior when distressed, $t(28.29) = -.97, p = .34, d = .37$, or less belief in their ability to repair negative mood, $t(17.99) = -.47, p = .64, d = .22$, when compared to individuals in the GAD analogue group. Overall, individuals in the relatively healthy group viewed themselves as more able to behave effectively when upset and more able to
soothe themselves when upset, as compared to individuals in the two clinical groups. Individuals in the GAD and MDD group endorsed roughly equivalent levels of difficulties coping with negative mood.

**Hypothesis 4: Fear of Negative Emotions, Worry, and Anxiety Symptoms**

Hypothesis 4 predicted that the relationship between worry and extent of GAD symptoms would be moderated by fear of negative emotions such that higher levels of fear of negative emotions would strengthen this relationship. Table 5 displays correlations between all variables of interest in this study. Hypothesis 4 was examined using hierarchical linear regression. Worry as measured by the PSWQ (Meyer et al., 1990) and fear of negative emotions as measured by the ACS (Berg et al., 1998; Williams et al., 1997) were entered into step 1. An interaction term between worry and fear of negative emotions was entered into step 2. Extent of GAD symptoms as measured by the GAD-Q-IV (Newman et al., 2002) was the dependent variable. A power analysis with power set to .80 and alpha set to .05 found that a sample of \( n = 55 \) would detect effects of a medium size (i.e., \( f^2 = .15 \)) for hypotheses 4. Hypothesis 4 did not require group membership and thus the full sample of 170 individuals was utilized. With a sample of \( n = 170 \) this analysis possessed a power of .99 to detect medium effect sizes and a power of .80 to detect effect sizes as small as Cohen’s \( f^2 = .047 \) (i.e., small to medium effect size).
Table 5.  
*Correlations between Variables of Interest for Full Sample*

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<th></th>
<th>Inferred MCR</th>
<th>Explicit MCR</th>
<th>Fear of Emotion</th>
<th>Goal-Directed</th>
<th>Mood Repair</th>
<th>Worry</th>
<th>Brooding</th>
<th>MDD Symp</th>
</tr>
</thead>
<tbody>
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<td>Fear of Emotion</td>
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<tr>
<td>Goal-Directed</td>
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<td>.62***</td>
<td>.77***</td>
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<tr>
<td>Mood Repair</td>
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*Note.* Correlations are based on full sample (n = 170). Inferred MCR = Inferred Meta-Cognitive Reactions to Emotions; Explicit MCR = Explicit Meta-Cognitive Reactions to Emotions; Goal-Directed = Difficulties Engaging in Goal-Directed Behavior When Upset; Mood Repair = Difficulties Repairing Negative Mood. ***p<.001 indicating significant relationship.
In evaluation of hypothesis 4, a hierarchical linear regression found that prior to including the interaction term, there was a large effect for worry, \( pr = .62 \), Cohen’s \( f^2 = .61 \), and a small to medium effect for fear of negative emotions, \( pr = .25 \), \( f^2 = .067 \), to be significantly and uniquely related to GAD symptoms (see Table 6). The addition of the interaction of worry and fear of negative emotions significantly improved model fit and there was a small to medium effect for the interaction of worry and fear of negative emotions to be significantly and uniquely related to GAD symptoms, \( pr = .18 \), \( f^2 = .034 \).

Table 6.  
Hierarchical Linear Regression Examining Worry and Fear of Negative Emotions in relation to Extent of GAD Symptoms

<table>
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<tr>
<th></th>
<th>( B ) (SE)</th>
<th>( \beta )</th>
<th>( t )</th>
<th>( p )</th>
<th>( \Delta R^2 )</th>
<th>( \Delta F )</th>
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</table>

* FONE

Note. FONE = Fear of negative emotions. Extent of GAD symptoms was entered as the dependent variable.

Simple slope analysis was used to elucidate the interaction between worry and fear of negative emotions (see Aiken & West, 1991). Simple slope analysis revealed that there was a large effect for worry to be significantly, positively related to GAD symptoms at both low levels, \( t(166) = 7.78, p < .001, pr = .52, f^2 = .36 \), and high levels, \( t(166) = 8.52, p < .001, pr = .55, f^2 = .44 \), of fear of negative emotions. Hypothesis 4 was supported as higher levels of fear of negative emotions appeared to strengthen the
positive relationship between worry and GAD symptoms. Figure 1 displays the interaction between worry and fear of negative emotions in relation to extent of GAD symptoms.
Figure 1. 
*Interaction between Worry and Fear of Negative Emotions in relation to GAD Symptoms*
Hypothesis 5: Fear of Negative Emotions, Brooding, and Depressive Symptoms

Hypothesis 5 proposed that the relationship between brooding and extent of MDD symptoms would be moderated by fear of negative emotions such that higher levels of fear of negative emotions would strengthen this relationship. This hypothesis was examined using hierarchical linear regression with brooding as measured by select items from the RRS (see Armey et al., 2009) and fear of negative emotions as measured by the ACS (Berg et al., 1998; Williams et al., 1997) entered into step 1 and an interaction term between brooding and fear of negative emotions entered into step 2. Extent of MDD symptoms as measured by the QIDS-SR16 (Rush et al., 2003) was the dependent variable. The sample size necessary to detect medium effect sizes (i.e., $f^2 = .15$) for hypotheses 5, with power set to .80 and alpha set to .05, was $n = 55$. With a sample of $n = 170$ this analysis possessed a power of .99 to detect medium effect sizes and a power of .80 to detect effect sizes as small as Cohen’s $f^2 = .047$ (i.e., small to medium effect size).

In examination of hypothesis 5, a hierarchical linear regression found that prior to including the interaction term, there was a small to medium effect for brooding, $pr = .28$, $f^2 = .084$, and a medium to large effect for fear of negative emotions, $pr = .44$, $f^2 = .23$, to be significantly and uniquely related to MDD symptoms (see Table 7). There was a trend for the addition of the interaction of brooding and fear of negative emotions to improve the fit of the model. There was a small effect for the interaction of brooding and fear of negative emotions to be related to MDD symptoms at the trend level, $pr = .14$, $f^2 = .02$. 
Table 7.
Hierarchical Linear Regression Examining Brooding and Fear of Negative Emotions in relation to Extent of MDD Symptoms

<table>
<thead>
<tr>
<th></th>
<th>B (SE B)</th>
<th>β</th>
<th>t</th>
<th>p</th>
<th>ΔR²</th>
<th>ΔF</th>
<th>df</th>
<th>p</th>
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<tr>
<td>Step 1</td>
<td></td>
<td>.51</td>
<td>85.77</td>
<td>.001</td>
<td>2, 167</td>
<td>&lt;.001</td>
<td></td>
<td></td>
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<tr>
<td>Brooding</td>
<td>1.60 (.43)</td>
<td>.29</td>
<td>3.75</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>FONE</td>
<td>2.66 (.43)</td>
<td>.48</td>
<td>6.26</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td>.01</td>
<td>3.08</td>
<td>.081</td>
<td>1, 166</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brooding</td>
<td>.68 (.39)</td>
<td>.10</td>
<td>1.76</td>
<td>.081</td>
<td></td>
<td></td>
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<td>* FONE</td>
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</tbody>
</table>

Note. FONE = Fear of negative emotions. Extent of MDD symptoms was entered as the dependent variable.

Simple slope analysis was used to examine the interaction between brooding and fear of negative emotions (see Aiken & West, 1991). Simple slope analysis revealed that there was a small effect for brooding to be significantly, positively related to MDD symptoms at low levels of fear of negative emotions, t(166) = 2.00, p = .047, pr = .15, f² = .02, and a small to medium effect for brooding to be significantly, positively related to MDD symptoms at high levels of fear of negative emotions, t(166) = 4.05, p < .001, pr = .30, f² = .10. Support was found for hypothesis 5 as higher levels of fear of negative emotions appeared to strengthen the positive relationship between brooding and MDD symptoms. Figure 2 displays the interaction between brooding and fear of negative emotions in relation to extent of MDD symptoms.
Figure 2.
Interaction between Brooding and Fear of Negative Emotions in relation to MDD Symptoms
**Exploratory Analysis**

Given that Hypothesis 2b was not supported regarding fear of emotions in general, it was postulated that individuals in the GAD analogue group may experience a greater level of fear of anxiety in particular and view this emotion as especially threatening and harmful. An exploratory analysis was conducted examining the fear of anxiety subscale of the ACS. A one-way ANOVA revealed significant differences in fear of anxiety, $F(2, 72) = 70.74, p < .001, f = 1.40$, among the GAD analogue ($M = 4.47, SD = .73$), MDD analogue ($M = 4.08, SD = .85$), and relatively healthy group ($M = 2.54, SD = .50$). The planned contrast utilized the assumption of equal variances as indicated by the Levene’s test for homogeneity of variances. This contrast demonstrated a trend and small to medium effect for individuals in the GAD analogue group to endorse a greater extent of fear of anxiety as compared to individuals in the MDD analogue group, $t(72) = 1.70, p = .09, d = .40$. Thus, there was a tentative finding that individuals in the GAD analogue group were more wary of experiencing anxiety and viewed anxiety as more problematic and harmful than individuals in the MDD analogue group.
DISCUSSION

Emotions signal the occurrence of salient life events and are a fundamental aspect of the human experience. Indeed, emotions are integral in relaying important intrapersonal and interpersonal information (see Izard, 1977). Meta-cognitive reactions to emotions, or the manner in which individuals cognitively appraise their emotions (e.g., viewing sadness as a harmful experience that should be avoided) and emotionally respond to the arousal of their feelings (e.g., feeling ashamed that one is sad), are an important consideration in understanding the onset, maintenance, and treatment of psychopathology. Indeed, targeting individuals’ cognitive and emotional reactions to their feelings is a component of many forms of psychotherapy. For example, traditional cognitive-behavioral therapy can include the challenging of unhelpful beliefs regarding emotions, such as viewing an emotion as wrong, harmful, or an experience one is incapable of managing (e.g., Beck, Rush, Shaw, & Emery, 1979). Dialectical Behavior Therapy involves enhancing individuals’ abilities to identify, understand, allow, and effectively respond to their emotional experiences (see Linehan, 1993). Furthermore, Acceptance and Commitment Therapy seeks to promote allowance and acceptance of one’s feelings and reduce cognitive fusion with unhelpful thoughts regarding emotions (see Hayes et al., 1999).

Despite the centrality of emotions to human functioning, previous research regarding meta-cognitive reactions to emotions is limited, with perhaps the most well-
established finding being the relationship between anxiety sensitivity and panic disorder (e.g., Maller & Reiss, 1992; Taylor, 1995). Anxiety sensitivity refers to fear of anxiety sensations due to a belief that anxiety produces negative social, psychological or somatic consequences (Reiss, 1991). This meta-cognitive reaction to anxiety is central to the cognitive-behavioral conceptualization of panic disorder. Indeed, cognitive-behavioral therapy of panic disorder involves cognitive restructuring of negative beliefs about anxiety sensations and reducing fearful responses to anxious feelings through exposure exercises (e.g., Barlow & Craske, 2006). The translation of research regarding anxiety sensitivity into effective cognitive-behavioral treatment highlights the importance of understanding how individuals with psychopathology cognitively evaluate and emotionally react to their feelings.

As very few studies have examined meta-cognitive reactions to negative emotions as they relate to GAD, with even fewer studies examining these reactions in relation to MDD, the current study sought to explore meta-cognitive reactions to negative emotions among three subgroups: a GAD analogue group, a MDD analogue group, and a relatively healthy group. Commonalities and distinctions in the manner in which individuals with different symptoms of psychopathology viewed their emotions were evaluated. The present study also sought to elucidate relationships between fear of emotions, maladaptive thought processes (i.e., brooding and worry), and symptoms of psychopathology.
MDD and GAD Analogue Groups versus Relatively Healthy Group

Consistent with study predictions, individuals in the two clinical analogue groups demonstrated more negative meta-cognitive reactions to negative emotions, as assessed by structured interviews, when compared to individuals in the relatively healthy group. Individuals in the MDD analogue group and individuals in the GAD analogue group expressed more disapproval of and discomfort with their negative emotional experiences and viewed these experiences as more problematic than relatively healthy individuals. This finding is consistent with previous research linking nonacceptance of emotions to anxiety and depressive pathology (Campbell-Sills et al., 2006; Ehring et al., 2008; Salters-Pedneault et al., 2006).

Individuals in the MDD and GAD analogue groups also endorsed being more apprehensive regarding the elicitation of negative emotions and more fearful of reacting problematically or losing control of their negative emotions, as measured by self-report, when compared to individuals in the relatively healthy group. This finding supports previous research indicating that patients with GAD endorse more fear of anxiety and marginally more fear of depression than non-clinical individuals (Roemer et al., 2005). The current study also found that individuals in the two clinical analogue groups viewed themselves as less able to engage in productive activities when distressed and less able to soothe themselves and repair their negative mood, as measured by self-report, when compared to individuals in the relatively healthy group. These findings are congruent with previous studies that have found individuals with psychopathology to report a greater extent of negative beliefs about their ability to alleviate negative moods.
(Catanzaro, 1993; Catanzaro et al., 1995; Kirsch et al., 1990) and their ability to engage in goal-directed behavior when upset (Ehring et al., 2008).

Overall, individuals in the MDD and GAD analogue groups consistently demonstrated a greater extent of negative beliefs and feelings towards their negative emotions, as assessed by both structured interview and self-report, in comparison with individuals in the relatively healthy group. Viewing negative emotions as harmful, problematic, useless, or invalid experiences and responding to feelings with aversion could contribute to psychopathology. Individuals who have highly negative beliefs and negative emotional reactions to their feelings are essentially rejecting an aspect of their own internal experience, which could lead to viewing themselves as “wrong” for having this experience (e.g., “Why can’t I just be happy like everyone else?”). These negative meta-cognitive reactions may also preclude the understanding of important information conveyed by emotions and lead to problematic avoidance strategies in which important issues are not addressed due to discomfort with the feelings elicited by the difficult situation (see Hayes et al., 1999). Furthermore, individuals high in negative meta-cognitive reactions to emotions could engage in problematic coping strategies designed to eliminate, avoid, and reduce awareness of their feelings, even if such strategies have negative long-term consequences. Indeed, Manser, Cooper, and Trefusis (2012) found negative meta-cognitive beliefs regarding emotions to be associated with maladaptive coping behaviors.

A bidirectional relationship may exist in which negative meta-cognitive reactions to emotions are both a risk factor for and exacerbated by psychopathology. For example,
individuals who hold negative beliefs and feelings regarding sadness may be more vulnerable to experiencing a major depressive episode. The experience of depression could then amplify the belief that sadness is debilitating and harmful. Further research is needed in this area and directionality of the relationships found in this study cannot be determined due to the cross-sectional nature of the findings.

MDD Analogue Group versus GAD Analogue Group

Although the hypotheses regarding distinctions between the clinical groups and the relatively healthy group were supported, predictions regarding distinctions between the GAD and MDD analogue groups were not supported. As individuals with high levels of GAD symptoms could be more likely to focus on perceived threat or loss of control, the GAD analogue group was expected to demonstrate greater fear of emotions as compared to the MDD analogue group. Furthermore, as individuals with high levels of MDD symptoms may be more likely to view themselves as incapable and disempowered, it was predicted that individuals in the MDD group would endorse less belief in their ability to engage in goal-directed behavior when upset and less belief in their ability to repair negative mood than individuals in the GAD analogue group. However, these hypotheses were not supported as significant differences were not found between the groups in these areas.

The absence of significant differences between the MDD and GAD analogue groups could be the result of several factors, including lack of true distinctiveness in the variables of interest, reduced statistical power to detect differences, inadequate
measurement of the intended constructs, or insufficient clinical utility of the two groups. Viewing negative emotions as harmful and fearing loss of control over one’s emotions may not be a factor that is unique to individuals with high levels of GAD symptoms. In addition, viewing oneself as unable to effectively engage in goal-directed behavior when upset or repair negative mood when upset may not be factors that are unique to individuals with high levels of MDD symptoms. However, these analyses were also underpowered to detect group differences. It could be that the two clinical analogue groups are truly distinct regarding these emotional phenomena and that the lack of findings was due to reduced statistical power. It may also be that a larger sample capable of revealing statistically significant differences in these factors may not reflect meaningful clinical significance. For instance, if individuals with MDD viewed themselves as slightly less capable of coping with their emotions than individuals with GAD, this might not be a finding that has true clinical utility, in terms of advancing our understanding of the nature of these two disorders.

Furthermore, it may be that fear of emotions and perceived coping ability are distinctive factors in relation to GAD and MDD but that the measures utilized in the current study did not adequately assess the intended constructs. Indeed, the measures utilized in the current study may not have been sensitive enough to cleave apart distinctive aspects of meta-cognitive reactions to emotions between MDD and GAD. Measures may have been appropriate for capturing a more general picture of subjective emotional experience (e.g., holding negative beliefs regarding emotions) but not for delineating more fine-tuned and distinctive aspects of emotional functioning between
individuals with MDD versus GAD. Finally, the two clinical analogue groups were formed on the basis of self-reported symptoms of psychopathology in a non-clinical sample and these findings may not be applicable to clinical samples of individuals assessed by a more rigorous diagnostic methodology. Thus, these findings require replication before conclusions can be drawn regarding fear of emotions and perceived ability to cope with negative mood as being common or distinctive factors in relation to GAD and MDD.

When significant differences between the MDD and GAD analogue groups were not found regarding fear of negative emotions, an exploratory analysis was conducted examining fear of anxiety, in particular. A trend was found for individuals in the GAD analogue group to report more fear of anxiety than individuals in the MDD analogue group. This finding is consistent with previous research in which individuals with GAD endorsed elevated levels of anxiety sensitivity (Taylor et al., 1992). Viewing anxiety as a particularly threatening and harmful and being fearful of this emotion could potentially be a factor that is distinctive to GAD as opposed to MDD. Again, this finding is very tentative and would require replication as well as more conclusive GAD and MDD diagnoses in a clinical sample.

Fear of Negative Emotions as a Moderator between Maladaptive Repetitive Thought and Symptoms of Psychopathology

In addition to examining potential group differences in meta-cognitive reactions to negative emotions, the current study also aimed to elucidate the relationship between
fear of negative emotions, maladaptive thought processes (e.g., worry, brooding), and symptoms of psychopathology. Consistent with hypotheses, higher levels of fear of negative emotions appeared to strengthen the positive relationship between worry and GAD symptoms. Likewise, as predicted, higher levels of fear of negative emotions appeared to augment the positive relationship between brooding and MDD symptoms. Study findings are consistent with conceptualizations of brooding (e.g., Williams et al., 2007) and worry (e.g., Borkovec et al., 2004; Mennin et al., 2002; Mennin et al., 2005) as influenced by the desire to eliminate, control, or avoid difficult emotions.

These findings indicate that the detrimental effects of worry and brooding may be amplified by fear of negative emotions. Fear of emotions could “feed” the repetitive thought cycle as individuals focus on their emotional state as the “problem” about which they are worrying or brooding (e.g., “What if I keep feeling this way?” “Why do I always get so upset?”). Consistent with the idea of discomfort with feelings fueling repetitive thought, Davey and colleagues (Davey, 2006; Startup & Davey, 2001) have put forth a “mood as input” hypothesis, in which individuals view negative mood as an indication that the topic of their repetitive thought is not resolved (i.e., negative mood is taken as evidence of something being wrong). It may be that individuals who are more fearful of their emotions incur more problematic consequences from passive, negatively-valenced repetitive thought, such as prolonged negative mood states, less adaptive reflection on activating situations, more concern regarding eliminating negative feelings, increased negative, abstract self-referential thought, or reduced flexibility in thinking. Clinically, these findings imply that targeting fear of emotions may be useful in the treatment of
anxious and depressed individuals who engage in frequent worry or brooding. It should be noted that as these findings are cross-sectional in nature, directionality of these relationships cannot be concluded.

**Clinical Implications Regarding MDD and GAD**

Findings from the current study indicate that individuals with MDD and GAD hold an array of negative attitudes and feelings towards their emotions, including viewing their negative emotions as problematic, being fearful of the elicitation of their negative emotions, and viewing themselves as having limited ability to effectively cope with their negative emotions. These meta-cognitive reactions are important considerations in understanding the subjective emotional experiences of individuals with MDD and GAD. Normatively, emotions, even the ones typically viewed as negative (e.g., fear, sadness, anger, etc.) signal us to take notice of internal or external triggers and can serve as a guide toward taking effective action to address our needs, goals, and values. When an event is encountered that elicits strong negative emotions (e.g., an unwanted outcome, an unexpected problem, an interpersonal conflict) individuals’ negative beliefs and aversion to their emotions could lead to more avoidant coping, greater engagement in maladaptive repetitive thought, and consequently, reduced ability to adaptively address the activating event.

Understanding the detrimental manner in which individuals with MDD and GAD cognitively appraise and emotionally respond to their feelings may be useful in guiding effective treatment. Recently, cognitive-behavioral therapies have emerged that include a
greater focus on the individuals’ experiences of and reactions to difficult emotions to more effectively treat conditions characterized by relapse (e.g., MDD; Hayes et al., 1999; Segal et al., 2002) and persistent symptomatic recurrence (e.g., GAD; Mennin & Fresco, 2009; Newman et al., 2008; Roemer & Orsillo, 2005). Integrating emotion-focused approaches into cognitive-behavioral treatment may enhance individuals’ abilities to allow their emotions, understand their needs and goals in a given situation, effectively manage their feelings, and act in a manner that is adaptive for the current circumstances (see Greenberg, Rice, & Elliott, 1993; McCullough-Vaillant, 1996). Innovative cognitive-behavioral treatments such as Dialectical Behavioral Therapy (Linehan, 1993), Acceptance and Commitment Therapy (Hayes et al., 1999), Mindfulness-based Cognitive Therapy (Segal et al., 2002), the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Barlow et al., 2011), Acceptance-based Behavioral Therapy (Roemer & Orsillo, 2005), Integrative Therapy (Newman et al., 2008), Compassion-focused Therapy (CFT; Gilbert, 2009), and Emotion Regulation Therapy (Mennin & Fresco, 2009) conceptualize painful emotions as natural responses to life’s challenges, provide validation regarding difficult emotional experiences, and encourage responding effectively to uncomfortable feelings.

Utilizing techniques in cognitive-behavioral therapy that emphasize the experiencing and processing of difficult emotions (see Greenberg, 2002; Mennin & Fresco, 2009; Newman et al., 2008; Roemer & Orsillo, 2005) may alleviate negative beliefs and feelings regarding uncomfortable emotions in individuals with MDD and GAD. Indeed, research has indicated that the elicitation of greater levels of emotional
experiences in cognitive-behavioral therapy is associated with positive outcomes (Castonguay, Goldfried, Wiser, Raue, & Hayes, 1996). Craske and colleagues have proposed that greater emotional processing in exposure therapy for anxiety disorders facilitates more durable inhibition learning (i.e., new associations that inhibit the retrieval of previous associations), which leads to more positive outcomes (Craske et al., 2008; Craske, Liao, Brown, & Vervliet, 2012). Furthermore, employing skills-based interventions that are designed to facilitate the development of specific emotional regulatory capacities may increase individuals’ abilities to flexibly attend and respond to intense emotional experiences (see Clen, Mennin, & Fresco, in press; Fresco, Mennin, Heimberg, & Ritter, in press). Utilizing skills-based interventions that target emotional regulatory abilities in cognitive-behavioral treatment could reduce discomfort with emotional feelings and facilitate the development of a greater repertoire of emotion regulatory capacities such as the ability to flexibly move attention (see Kabat-Zinn, 2005), the ability to maintain awareness of one’s feelings (see Hayes et al., 1999), the ability to view emotions as temporary internal events (see Fresco, Segal, Buis, & Kennedy, 2007; Segal et al., 2002), and the ability to view upsetting situations from different perspectives (see Gross & Thompson, 2007). Incorporating therapeutic techniques that promote the experiencing and adaptive regulation of uncomfortable emotions may effectively address areas of emotional distress and dysfunction in individuals with MDD and GAD.
Future Directions Regarding the Elucidation of Emotional Processes in MDD and GAD

The high rates of comorbidity and diagnostic overlap between MDD and GAD have led to theoretical disagreements regarding the conceptualization and delineation of GAD (e.g., Mennin et al., 2008; Watson, et al., 2008). Some studies have emphasized commonalities between the two disorders, such as general distress and negative affectivity (see Watson, 2005; Watson et al., 2008), while other research findings have highlighted distinct emotional, cognitive, physical, and motivational factors that differ between GAD and MDD (Aldao et al., 2010; Mennin et al., 2008). There are limited empirical findings in this area and further research is needed to examine the nature of MDD and GAD. Understanding distinctive functional aspects of these two disorders will help to refine treatments that can specifically target the central processes in each disorder. For example, individuals with GAD may benefit from the employment of interventions designed to address problematic emotional reactions that involve excessive focus on threat and harm (see Fresco et al., in press; Klenk, Strauman, & Higgins, 2011). The current study was not able to elucidate distinctive meta-cognitive reactions between MDD versus GAD, likely due to the measures utilized having inadequate sensitivity to cleave apart specific beliefs and feelings regarding negative emotions that may be unique to individuals with different forms of psychopathology.

Although individuals with MDD and GAD likely share some commonalities in terms of general discomfort with their feelings and the tendency to hold negative beliefs regarding emotions, there may be important differences in meta-cognitive reactions to
emotions that have yet to be distinguished between these two disorders. The measures utilized in the current study may have been too general to be useful in identifying meaningful distinctions in the manner in which individuals with MDD and GAD cognitively appraise and emotionally respond to their feelings. For instance, the ACS (Berg et al., 1998; Williams et al., 1997), which is designed to assess the construct of fear of negative emotions, touches upon many different beliefs (e.g., believing one will be unable to soothe oneself, believing one will lose control of oneself, believing one will be rejected socially) and feelings (e.g., embarrassment, anxiety) regarding negative emotions. The amalgamation of different aspects of meta-cognitive reactions to emotions may obscure the identification of factors that are distinctive to MDD versus GAD.

It is important to consider the functional processes in MDD and GAD that may influence subjective emotional experiences that are unique to these disorders. MDD is typified by disengagement with the environment (Klinger, 1975; Nesse, 2000) and has been linked with reduced responsiveness to emotionally evocative stimuli (Rottenberg, Gross, & Gotlib, 2005). Meta-cognitive reactions to emotions in MDD may be influenced by a tendency towards shutting down, withdrawing, and feeling disempowered, such as viewing emotions as pointless, useless, and indications of personal inadequacy. Secondary emotional reactions (i.e., emotional responses elicited by one’s reaction to one’s feelings; see Greenberg, 2006) may be characterized by shame, hopelessness, and disappointment (e.g., becoming ashamed that one is sad due to a belief that there is something wrong with the person for not being happier). These reactions reflect discomfort with one’s emotions and the desire to avoid fully experiencing
emotions (see Greenberg, 2006; Greenberg & Safran, 1989). Furthermore, sadness may be an emotion that is viewed as especially pathological or indicative that one is abnormal, given past experiences with pervasive depressed mood states. It may be that individuals with MDD experience, respond to, and express sadness in a manner that is distinctive from individuals with GAD.

GAD is typified by heightened responses to perceived threat and a predilection towards security and certainty (see Fresco et al., in press; Klenk et al., 2011). In addition, GAD has been linked with increased reactivity to emotionally evocative stimuli (Mennin et al., 2005). Meta-cognitive reactions to emotions in GAD may be influenced by vigilance towards potential threat and apprehension over possible negative consequences, such as viewing emotions as harmful or indications that one is losing control. Individuals with GAD have been found to show interpersonally rigidity (Pincus & Borkovec, 1994), which could be associated with restrictive beliefs regarding the expression of emotions to others. Secondary emotional reactions to one’s feelings may be typified by fear (e.g., becoming afraid that one is nervous due to the belief that one will “lose it”). Furthermore, anxiety may be an emotion that is viewed as especially detrimental given experiences with pervasive anxious mood states. It may be that individuals with GAD experience, react to, and express anxiety in a manner that is distinctive from individuals with MDD.

Future research regarding meta-cognitive reactions to emotions in MDD and GAD may require more specific and sensitive measurement of beliefs and feelings regarding negative emotions. Increasing our understanding of the subjective experiences of difficult emotions in individuals with MDD versus GAD may help to further elucidate
and distinguish the nature of these two disorders and highlight important distinctive emotional processes that can be utilized to increase the effectiveness of targeted cognitive-behavioral interventions. In addition to exploring subjective emotional experiences, further research is also needed to clarify physiological, neurological, and behavioral components of emotional processes. By examining and clarifying emotional processes in these two disorders, including but not limited to meta-cognitive reactions to emotions, interventions can be more specifically honed to address areas of deficit or dysfunction in the experience of and reactions to negative emotions.
LIMITATIONS

Findings from the current study need to be interpreted in light of important limitations. First, participants in this study were college students who were primarily Caucasian and female, which limits the generalizability of findings to clinical samples and more diverse populations. Second, self-report measures were utilized to assess the majority of study variables (e.g., fear of emotions, beliefs regarding ability to repair mood). Self-report measures are limited by an individual’s understanding and awareness of the phenomena of interest as well as his or her ability and willingness to accurately report experiences. Third, group membership was determined by self-reported symptoms of psychopathology. Future studies could employ additional means of measurement, such as diagnostic interview, in order to replicate findings. Fourth, the present study was cross-sectional in nature and as such, directionality of findings cannot be concluded. Finally, hypotheses 1-3 were underpowered, and lack of significant differences between the MDD and GAD analogue groups could have been due to lack of adequate sample size rather than lack of true differences between the groups.
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