ADAPTIVE AND MALADAPTIVE RUMINATION: DIFFERENTIAL EFFECTS OF ABSTRACT AND CONCRETE CONSTRUAL OF BODY IMAGE-RELATED EVENTS

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I would like to dedicate this work to the memory of my parents, Marie and Jean Calixte, whose spirits continue to guide me. My father was a pillar of strength. My mother instilled in me the values of education, hard work, and resilience in the face of adversity. I am eternally grateful for the encouragement and support I have received in all of my endeavors.

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ABSTRACT

The current study examines the effect of different cognitive processing styles (abstract or concrete rumination and distraction) on self-satisfaction and affect. A sample of 150 female participants recalled personal experiences that triggered negative body image. Participants either distracted themselves from thinking about the experience or wrote about it for an extended time period in an abstract/evaluative or concrete/objective manner. Participants completed baseline and post-manipulation measures of state body image dissatisfaction, affect, physical appearance anxiety, and self-esteem. The hypothesis, developed from findings in previous research on dysphoric mood (Watkins, Moberly, & Moulds, 2008; Watkins & Moulds, 2005), was that abstract construal of negative body image-related experiences would result in greater body image dissatisfaction, physical appearance anxiety, and negative affect, and lower self-esteem than concrete rumination and distraction. Results revealed that abstract construal contributed to the greatest increase in body image dissatisfaction and the greatest reduction in appearance-related self-esteem and positive affect. Unlike abstract construal and distraction, concrete construal resulted in no significant change in body image dissatisfaction from pre-manipulation to post-manipulation. Distraction resulted in the greatest increase in fatigue. Previous research has provided a narrow conceptualization of rumination as maladaptive. The results of this study provide support for broader conceptualization of rumination as both maladaptive and adaptive, dependent upon outcomes across psychopathological domains.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

Rumination is a process involving repetitive thinking about typically self-focused, negative life experiences and current or ideal emotional and physical states. Nolen-Hoeksema, Morrow, and Fredrickson (1993) characterized ruminative responses as behavioral (mental and physical) and attentional (self-focused). In the context of research studies, trait rumination may be defined as a characteristic or propensity to respond to stressors with perseveration, whereas state rumination may be an immediate response to a particular stressor. Ruminative thought can be anchored in the past, current, and future time frames. Some evidence points to changes in the time frame of focus over the course of the ruminative process, where the content of thought is initially past-focused but attention may shift to the present or the future (McLaughlin, Borkovec, & Sibrava, 2007). Rumination can be stress-reactive, where it is precipitated by negative life events (Alloy et al., 2000), or it can be an emotion-focused process that is precipitated by negative mood (Nolen-Hoeksema, 1991). The content of ruminative thought is all-encompassing, but themes may appear in different psychological and pathological domains. For example, in the domain of depression, themes in the content of rumination may be hopelessness, failure, or feelings of inadequacy. Simulation of rumination through written narratives may be one method of examining the content of ruminative thought. Watkins (2004) examined the written narratives of ruminators and found that they often focused on the sources of their current distress.

The construct of rumination is often associated with research on psychological domains such as depression and anxiety, but researchers have sought to identify outcomes associated with rumination in other domains. Psychophysiological studies have examined cardiovascular outcomes associated with rumination (Gerin, Davidson, Christenfeld, Goyal, & Schwartz, 2006; Glynn, Christenfeld, & Gerin, 2002; Key, Campbell, Bacon, & Gerin, 2008) and found that

rumination is associated with responses such as increased heart rate and high blood pressure, and delayed recovery of blood pressure after being exposed to stressful situations. There is no strong evidence linking rumination to cardiovascular disease, but sustained elevations in blood pressure may contribute to hypertension, which can damage organs. Studies of pain have suggested that there may be a link between rumination and magnification of symptoms, with subjects typically undergoing a pain-induction task and high trait ruminators reporting greater pain severity (Gilliam et al., 2010; Sullivan, Bishop, & Pivik, 1995). Research has demonstrated evidence that rumination may affect quality of life. A study of teachers from schools in Surrey of the United Kingdom found a positive correlation between job strain and rumination, where teachers experiencing greater job strain ruminated more than those with less job strain and, although there was no significant difference in the average number of hours of sleep for teachers with high and low job strain, the high trait ruminators reported poorer quality of sleep (Cropley, Dijk, & Stanley, 2006).

In order to better understand the construct of rumination, it is useful to distinguish it from similar constructs such as worry. The conceptualization of rumination by Treynor, Gonzalez, and Nolen-Hoeksema (2003) features three sub-components of the construct: depression, reflection, and brooding. Depression-related rumination consists of repetitive self-focus on depressive symptoms. Brooding consists of passive dwelling on the implications of negative circumstances whereas reflection is an active attempt to gain insight and understanding about the causes of current mood. Roemer and Borkovec (1993) conceptualized worry as anxious repetitive thought about issues that are relatively uncontrollable and whose outcomes are uncertain but contain the possibility of one or more negative outcomes. There is a positive correlation between rumination and worry and both constructs are positively correlated with depression and anxiety (Fresco,

Frankel, Mennin, Turk, & Heimberg, 2002; Muris, Roelofs, Rassin, Franken, & Mayer, 2005). It is possible that mediating variables such as perception of controllability of circumstances explain the correlation between rumination and worry.

The Domain of Depressive Rumination

Susan Nolen-Hoeksema defined rumination as repetitive thinking and focus of attention on the causes, meanings, and consequences of depressive feelings and symptoms (Nolen-Hoeksema, 1991). Individuals who ruminate in response to depressed mood exacerbate their depressive symptoms and prolong their depressed moods (Nolen-Hoeksema et al., 1993). Ruminative responses related to depressive symptoms involve more passive perseveration, in contrast to active problem-solving, to relieve the symptoms (Nolen-Hoeksema, 1991). Ruminative responses to depressive symptoms are manifested in various manners such as reflection and brooding (Nolen-Hoeksema et al., 1993; Trapnell & Campbell, 1999; Treynor et al., 2003). Self-focus during depressive episodes provides greater access to negative thoughts (Carver, Blaney, & Scheier, 1979). Thus, individuals who engage in rumination may be more likely to have a negative outlook on the causes and consequences of events, which may also contribute to and exacerbate their depression (Nolen-Hoeksema et al., 1993).

Nolen-Hoeksema et al. (1993) found sex differences in ruminative responses, where females were more likely to engage in rumination in response to depressed mood than males, who were more likely to distract themselves. Females also reported experiencing more severe and prolonged depression. The authors developed the theory of ruminative response styles as one possible explanation for previous findings of sex differences in depression (Nolen-Hoeksema, 1987), where the tendency to engage in rumination exacerbated depressed mood and the

tendency to engage in distraction resulted in elevated mood. Nolen-Hoeksema (1987) argued that regardless of the sources of depression, it is the response style that predicts outcomes in depression. Nolen-Hoeksema, Parker, and Larson (1992, as cited in Nolen-Hoeksema et al., 1993) found positive correlations among the number of distressing life events, ruminative response styles, and depression. The authors found that ruminative response styles were significant predictors of depression, even after controlling for the number of stressful life events.

Nonspecificity of Rumination to Depression

Although Nolen-Hoeksema's Response Styles Theory of Depression conceptualized rumination as prolonged thought about depressive symptoms, other models of rumination propose a broader conceptualization that examines responses to negative events in general. Alloy et al. (2000) formulated the Stress-Reactive Model of rumination, which considers responses triggered by stressful life events. Although the ruminative response is similar to that of Nolen-Hoeksema's conceptualization (negative inferences about causes and consequences of the event), the domain of the Stress-Reactive Model is not specific to depression. Smith and Alloy (2009) suggest that the Stress-Reactive Model is useful because it consists of a broader conceptualization of rumination than the Response Styles Theory of Depression—it considers the impact of ruminative responses to events *before* the onset of depression. Smith and Alloy (2009), however, believe that the Stress-Reactive Model is limited because it suggests that ruminative responses are precipitated by stressful events and neglects to consider situations in which there is not a particular antecedent such as unprovoked, persistent self-deprecating thoughts or rumination triggered by emotions such as dysphoric mood.

Rumination and Body Image Disturbance

Smith and Alloy (2009) suggested that rumination is not only associated with symptoms of depression, but also other issues of social relevance that may cause anxiety and distress such as social status, attractiveness, and interpersonal relationships. Mezulis, Abramson, and Hyde (2002) examined the ruminative responses of 148 female participants and 111 males in the context of depression and general negative events, and in specific domains of interpersonal relationships, achievement, and body image/attractiveness. The authors found significant sex differences ($p < .05$) where females reported ruminating more than males about achievement, interpersonal events, and body image/attractiveness. The authors found marginally significant sex differences ($p < .08$) in rumination about depressed mood and general negative events. There were small effect sizes for sex differences in ruminative responses to events related to depression (Cohen's $d = .24$), negative events in general ($d = .22$), and achievement such as academic performance ($d = .28$). There was a moderate effect size for sex differences in rumination in response to interpersonal events such as a romantic partner ending the relationship ($d = .55$) and a large effect size for body image/attractiveness events such as overhearing someone state that they are unattractive ($d = .68$). These results, revealing the largest effect size in sex differences in ruminative responses to events associated with interpersonal issues and body image, highlight the necessity for further research on rumination in these domains in order to understand why females may be more prone to engaging in ruminative responses. The authors speculate that, "past experiences with negative events in particular domains may heighten sensitivity to events in those domains" (Mezulis et al., 2002, p. 423). Therefore, it is possible that past, negative experiences related to body image and interpersonal issues may influence sensitivity to new

occurrences of these negative events, and this sensitivity may result in recurrent engagement in maladaptive responses such as rumination.

A study by Etu and Gray (2010) examined the effect of inducing body image-focused rumination in a sample of undergraduate students or instructing them to engage in a distraction task. All participants were given a body image-related vignette that was intended to threaten their body image and induce negative affect through statements such as, "You stare at the mirror and can't help but feel disgusted with yourself… You had promised yourself you would lose weight" (Etu & Gray, 2010, p. 83). Participants were randomized into the rumination and distraction conditions and they were prompted to focus on the vignette or distract themselves for eight minutes. Participants in the rumination group were instructed to write about their thoughts and feelings regarding the vignette by using prompts influencing them to focus on negative body image associated with body shape and weight. Participants in the distraction group were instructed to write about a series of neutral topics such as the layout of their local mall. The results revealed that subjects in the rumination condition reported greater body image dissatisfaction and physical appearance anxiety than those in the distraction condition, when controlling for baseline measures of Body Mass Index (BMI), depression, and body image dissatisfaction. This research demonstrates the effect of rumination following induction of negative body image. Individuals who ruminate after exposure to negative, body image-related events may experience dissatisfaction with and anxiety about their body image.

Adaptive and Maladaptive Rumination

Individuals who develop ruminative response styles may experience greater depression and negative mood. It is essential to determine what perceived functions and benefits are

associated with rumination in order to understand why the habit is maintained. A major consideration in examination of repetitive self-focus is the perceived utility of rumination in comparison to the actual effectiveness. Regardless of scores on objective measures of outcomes such as depression severity, ruminators have reported positive and negative beliefs about the functions of their rumination. A study of patients meeting criteria for Major Depressive Disorder found that positive perceptions about rumination included beliefs that it served as a coping strategy to understand the causes of their depression and a method of preventing future mistakes and failures (Papageorgiou & Wells, 2001a). Negative perceptions consisted of beliefs that rumination was uncontrollable and that it could exacerbate their depression. The belief that rumination was helpful and uncontrollable may explain why patients continued to engage in rumination despite negative outcomes such as exacerbated depression. Despite perceived and actual negative consequences of rumination, another reason why individuals continue to ruminate may be that there are other factors such as low confidence in ability to solve problems (Papageorgiou & Wells, 1999, 2001b) that prevent ruminators from generating alternative solutions.

In addition to actual and perceived of utility of rumination, research has identified other features of adaptive and maladaptive rumination. According to Watkins (2004), rumination is maladaptive when the self-focus is evaluative, self-critical, and perpetuates depressed mood and negative thinking, but it is adaptive when the self-focus is experiential and provides insight that leads to effective problem-solving. Watkins (2008) suggested that whether or not a repetitive thought process is adaptive or maladaptive is also dependent upon an interaction between valence (positive or negative), and level of construal (abstract or concrete). Watkins (2008) characterized maladaptive rumination by using empirical evidence that demonstrated its usual

occurrence in the context of negative experiences, with cognitive processing that is typically abstract. Concrete construal in the context of negative experiences was characterized as adaptive because it resulted in better outcomes such as less emotional reactivity in response to failure feedback. It should be noted that there is not sufficient evidence regarding adaptiveness or maladaptiveness of abstract and concrete construal in the context of positive experiences.

Treynor et al. (2003) have also demonstrated empirically that the sub-components of rumination can be adaptive or maladaptive. They found that brooding (passive dwelling on consequences of depressed mood) and reflection (an active attempt to gain insight into the causes of depression) predicted different outcomes in depressed subjects. Brooding predicted increases in depression severity over the course of one year and reflection predicted reductions in depression. These results indicate that brooding may have more negative implications than reflection. Similarly, Burwell and Shirk (2007) found that adolescent brooding was related to maladaptive coping strategies such as disengagement from problems and predicted the development of depressive symptoms over time. Burwell and Shirk also found that reflection was related to adaptive coping strategies such as cognitive restructuring.

Rumination can serve as a function of making sense of an experience or as a coping strategy after a negative experience. As a coping strategy, rumination can serve the purpose of emotion regulation. In the Goal Progress Model, rumination serves the purpose of solving personal problems or resolving the incongruity between one's current and desired state (Martin, Tesser, & McIntosh, 1993; Smith & Alloy, 1999). In the Goal Progress Model, individuals experience thoughts related to incomplete goals, and ruminative thinking will persist until the goal is achieved or abandoned. When ruminative thinking inhibits behavioral action, effective problem-solving and goal attainment are also inhibited, leading to further ruminative tendencies

(Watkins & Moulds, 2005). The inhibition of behavioral activation and progression towards goals demonstrates a maladaptive use of rumination as an avoidant coping mechanism for emotion regulation (Smith & Alloy, 1999). Rumination can facilitate experiential avoidance through passive dwelling on negative experiences rather than active problem-solving.

Processing Mode Theory of Rumination

Recent research on the cognitive processing mode of rumination suggests that the automaticity (stress-reactivity) and repetitiveness of self-focus following negative events may not sufficiently explain the detrimental effects of maladaptive rumination. Some theorists argue that there are two distinct levels of construal, where rumination is abstract, generalized, and evaluative or concrete, specific, and objective (Watkins, Moberly, & Moulds, 2008; Watkins & Teasdale, 2001). Abstract, evaluative construal focuses on the causes, meanings, and implications of distressing events. Concrete, objective construal, on the other hand, focuses on the objective details of the events. Watkins et al. (2008) found that, by inducing abstract processing, subjects reported a greater increase in negative mood after receiving failure feedback on an anagram task than subjects engaging in concrete processing. Therefore, abstract, evaluative processing may exacerbate dysphoric mood.

Because abstract thoughts are generalized, they evoke less vivid imagery, and less imagery overall, in comparison to concrete thoughts (Paivio & Marschark, 1991). Reduced concreteness theorists argue that, because abstract memories are less vivid, they consequentially inhibit emotional processing (Watkins, 2004). Inhibition of emotional processing during abstract rumination may explain exacerbation of negative mood. Less vivid imagery of events and fewer specific details, which are characteristic of abstract processing, also inhibit ability to generate

solutions for negative events (Watkins & Moulds, 2005). Thus, along with hyper-focused attention on symptoms and experiences, abstract construal also hinders emotional processing and effective problem-solving.

Processing Mode Theory of Rumination in the Domain of Body Image

Etu and Gray (2010) found a significant effect of rumination on body image dissatisfaction in comparison to distraction in response to negative body image-related events. Sparapani (2012) examined the role of rumination and level of construal in body image dissatisfaction, physical appearance anxiety, and negative affect using the same rumination and distraction vignettes from Etu and Gray's study, with an addition of concrete-experiential vignettes. Subjects in Sparapani's study were randomly assigned to one of three conditions of processing mode: abstract-analytic, concrete-experiential, and distraction. Subjects in each condition were instructed to read vignettes about events related to body image dissatisfaction such as, "You stare at the mirror and can't help but feel disgusted with yourself… You had promised yourself you would lose weight" (Etu & Gray, 2010, p. 83). Subjects in the distraction condition were instructed to engage in neutral thoughts that were unrelated to the prompts such as the description of the layout of a local mall. Subjects in the abstract condition were instructed to focus on their feelings in relation to the prompts. Subjects in the concrete condition were instructed to focus on the details and circumstances of the events. Subjects in all three conditions were instructed to write for eight minutes (to model maladaptive and adaptive rumination or distraction) about their vignettes using the level of construal as instructed. Sparapani did not find any significant between-subjects effects of level of construal on any of the dependent measures of body image dissatisfaction, physical appearance anxiety, and negative affect. Sparapani

addressed some limitations, which she believed contributed to the lack of differences among subjects in the three conditions. One limitation was that subjects were provided with a negative body image-related prompt to think about, which may not have elicited any significant emotional reactivity in them. This idea coincides with research that has demonstrated that rumination exacerbates negative mood but has no effect when individuals are not experiencing dysphoric mood (Nolen-Hoeksema & Morrow, 1993). Watkins et al. (2008) suggested that, "when there is a negative emotional response to a stressful event, depressive rumination will further exacerbate negative affect and negative thinking, whereas when there is little or no negative emotional response, rumination will have no further impact" (p. 364).

Another limitation in Sparapani's (2012) study is that, with exception to the measure of body image dissatisfaction, the dependent measures of negative affect and physical appearance anxiety were only administered post-manipulation. The study was designed in that manner because Sparapani believed that in the short study, subjects might experience carryover effects while completing the measures. It cannot be determined if subjects within each condition experienced significantly different baseline affect and physical appearance anxiety, or if there was any significant change in dependent measures from prior to and following the manipulation.

Sparapani (2012) believed that there was a limitation in the instructions that were given to the subjects in the concrete condition. These subjects were given several event-focused prompts such as, "Describe the events in detail, like a movie on a screen" (Sparapani, 2012, p.32). Sparapani believed that these instructions may not have been detailed enough and did not provide subjects with enough direction to distinguish their thinking from that of subjects in the abstract condition. It is possible that greater direction for participants may strengthen the manipulation of concrete, objective processing.

The Current Study

The current study was a methodological revision of Sparapani's (2012) research design, which instructed participants to read vignettes about events related to body image dissatisfaction or self-focused feelings. Sparapani may not have found any significant effects of levels of construal on body image dissatisfaction and affect because participants may not have identified with the vignettes they read and, therefore, the manipulation may not have elicited a significant emotional response from them. Subjects in the experimental conditions in the current study were asked to think and write about their personal experiences with body image dissatisfaction in an abstract (evaluative) or concrete (objective) manner, with the expectation that personalizing the content that the subjects focused on would elicit greater emotional reactivity.

Subjects in the abstract condition of this study received instructions similar to previous studies in which subjects were asked about their feelings and the causes and consequences of the negative event (Nolen-Hoeksema, 1991; Sparapani, 2012; Watkins & Moulds, 2005). Subjects in the concrete condition of this study received instructions similar to those in Sparapani's (2012) study, with more direction in providing non-evaluative, objective details and imagery as in other research (Watkins & Moulds, 2005). The use of more elaborate prompts for participants was designed to strengthen the manipulation of concrete processing, in comparison to Sparapani's study, and to further distinguish it from abstract rumination. The subjects in the distraction condition received instructions directing them to briefly state what occurred during their body image-related experience and then to switch their focus to writing about the strategies they typically utilize in order to distract from distressing events and subsequent thoughts. This distraction condition was also designed to be more personalized than Sparapani's distraction condition, which provided subjects with writing prompts for an impersonal, arbitrary list of

stimuli that may not have shifted their attention away from thoughts of negative body image. The personalized distraction prompts in the current study were intended to strengthen the distraction condition, in comparison to Sparapani's study, in order to account for the use of a stronger manipulation of negative body image involving recollection of a personal, negative life experience.

The current study was restricted to female participants only for comparison to Sparapani's (2012) study, which also only consisted of females. Subjects in Sparapani's study were administered trait (pre-manipulation) measures of ruminative responses, difficulties engaging in emotion regulation strategies, and body image dissatisfaction, and post-manipulation measures of state body image dissatisfaction, physical appearance anxiety, and negative affect. In comparison, the current study consisted of trait measures of ruminative responses and difficulties engaging in emotion regulation strategies, along with the addition of a trait measure assessing beliefs about the benefits of rumination. In contrast to Sparapani's study, subjects completed both baseline and post-manipulation measures of state body image dissatisfaction, positive and negative affect, and physical appearance anxiety, along with the addition of a measure of state self-esteem.

Hypotheses

The first hypothesis was that subjects in the abstract condition, on average, would experience a greater increase in state body image dissatisfaction, negative affect, and physical appearance anxiety, and a greater reduction in state positive affect and self-esteem than subjects in the concrete and distraction groups. It was expected that subjects in the distraction group, who were prompted to write about their negative body image-related experience for the briefest

period of time, would experience the smallest increase in body image dissatisfaction, negative affect and physical appearance anxiety, and the smallest reduction in positive, affect and self-esteem. Furthermore, it was hypothesized that there would be significant contrasts comparing both the abstract and concrete rumination (experimental) conditions to the distraction (control) condition in baseline and post-manipulation difference scores on all dependent measures of body image dissatisfaction, positive and negative affect, physical appearance anxiety, and state self-esteem. It was expected that there would be positive correlation between measures of trait rumination and positive beliefs about rumination, with the notion that people who engage in rumination most frequently may also believe that they benefit from ruminating. It was also expected that there would be a positive correlation between measures of trait rumination and both baseline body image dissatisfaction and difficulties utilizing emotion regulation strategies, such as engaging in goal-directed activity.

CHAPTER 2

METHOD

Participants

Participants were 150 female students recruited from undergraduate psychology courses at a private, mid-Atlantic university. Compensation for participation consisted of one research credit for one hour of participation, or extra credit in a course, for which the subjects' instructors determined the amount of credit. Individual sessions with all of the participants were conducted by the Principal Investigator.

All of the subjects spoke English fluently and were literate. The age of participants ranged from 17 to 34 (M = 19.20, SD = 1.71). Parents of two 17 year-old subjects were contacted prior to their participation in order to inform them of the purpose, procedures, and risks of the study and to obtain their written consent. After informed consent was received from the parents, assent was obtained from the subjects.

Data on race was collected and 56% of participants identified themselves as Caucasian, non-Hispanic (n = 84), 13.33% Hispanic/Latin American (n = 20), 12% African American/Black (n = 18), 10.67% Asian/Asian American (n = 16), 0% Native Hawaiian/Other Pacific Islander, 0% American Indian, and 8% Other/Multiracial (n = 12). Data on class year was also collected and 36.67% identified as freshman (n = 55), 36.67% sophomore (n = 55), 22.67% junior (n = 34), 2.67% senior (n = 4), and 1.33% other, e.g. foreign exchange student (n = 2).

Measures

Demographics Questionnaire. The Demographics Questionnaire was designed by the Principal Investigator (see Appendix A). Participants were asked to report their age, race, year in

school, height, and weight. Self-reported height and weight were used by the Principal Investigator to calculate each participant's Body Mass Index (BMI).

Ruminative Responses Scale (RRS; Treynor et al., 2003). The Ruminative Responses Scale developed by Treynor et al. (2003) is an adaptation of a scale that was originally included in the Response Styles Questionnaire (Nolen-Hoeksema, 1990). The scale consists of 22 items assessing frequency of thoughts and behaviors when feeling sad or depressed, rated on a 4-point scale (1 = almost never, 4 = almost always). For example, subjects are asked how frequently they "think about how hard it is to concentrate". The adapted RRS features subscales that are Depression-Related, Reflection, and Brooding. The authors found strong internal consistency reliability (Cronbach's coefficient $\alpha = .90$) and adequate retest reliability ($r = .67$). The authors proposed removing the 12 items composing the Depression-Related subscale in order to address item overlap with the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The authors used principal components analysis (PCA) to create a 10-item scale assessing the factors of reflection and brooding. Since each of the two subscales in the 10-item scale were still significantly correlated with the BDI ($.08 < r < .44$, ps $< .01$), the full 22-item RRS scale was used in the current study. In the current study, the RRS demonstrated strong internal consistency reliability ($\alpha = 87$; see Table 1 for a listing of internal consistency reliability of measures). Scoring of the RRS was completed by calculating the sum of all of the items in total or for each subscale, where higher scores reflected stronger ruminative response styles. Subjects completed this measure prior to the experimental manipulation to assess trait ruminative response styles.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The Difficulties in Emotion Regulation Scale assesses responses to emotional experiences. Subjects

completed this measure prior to the experimental manipulation in order to assess trait emotion regulation tendencies. The 36-item scale consists of six components: nonacceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. An example of an item is, "When I'm upset, I become angry with myself for feeling that way". Gratz and Roemer (2004) found a strong internal consistency reliability for the entire scale ($\alpha = .93$), and for each subscale ($.80 < \alpha < .89$) and adequate retest reliability (over a period ranging four to eight weeks) for the entire scale ($\rho_I = .88$, $p < .01$) and for each subscale ($.57 < \rho_I < .89$, ps $< .01$). In the current study, the DERS demonstrated strong internal consistency reliability ($\alpha = .92$). Scoring of the DERS was completed by calculating the sum of all of the items in total or for each subscale, where higher scores reflected more difficulties regulating emotions.

Positive Beliefs about Rumination Scale (PBRS; Papageorgiou & Wells, 2001b). The Positive Beliefs about Rumination Scale was used to assess the perceived utility of rumination. The scale consists of 9 items requiring participants to rate their degree of agreement with statements about the benefits of rumination on a 4-point scale (1 = do not agree, 4 = agree very much). A sample item is, "Ruminating about the past helps me work out how things could have been done better". This measure was completed prior to the experimental manipulation. Papageorgiou and Wells (2001b) found a strong six-week retest reliability ($r = .85$, $p < .001$), suggesting a trait-like structure of these beliefs. The authors also found strong internal consistency reliability ($\alpha = .89$). There was strong internal consistency reliability within the PBRS measure in the current study ($\alpha = .92$). The PBRS was scored by summing all of the items, where higher scores reflected stronger beliefs about the perceive benefits of rumination.

Contour Drawing Rating Scale (CDRS; Thompson & Gray, 1995). The Contour Drawing Rating Scale assesses body image dissatisfaction through the use of artist-rendered drawings of male and female figures ranging from thin to heavy body sizes, with gradual and proportionate increases in the waist-to-hip ratio. The current study was restricted to female participants, thus only the female version of the CDRS was utilized. Participants were asked to select the figure most representative of their current body type and their ideal body type. The numerical difference between the current and ideal body type was used to compute a discrepancy score. Higher discrepancy scores reflected greater body image dissatisfaction. This measure was completed prior to and following the experimental manipulation. Thompson and Gray (1995) found adequate one-week retest reliability ($r = .78$, $p < .001$). The CDRS has also demonstrated concurrent validity between the CDRS figure that participants believed represented their current body type and their actual weight ($r = .71$, $p < .001$), and between the CDRS figure of current body type and BMI ($r = .59$, $p < .001$).

Positive and Negative Affect Scale-Expanded Form (PANAS-X; Watson & Clark, 1994). The Positive and Negative Affect Scale-Expanded Form consists of 60 items that assess state affect. There are three Basic Positive Affect subscales (Joviality, Self-Assurance, and Attentiveness) and four Basic Negative Affect subscales (Fear, Hostility, Guilt, and Sadness). There are also two subscales of General Positive and General Negative Affect and four subscales of "Other" Affective States (Shyness, Fatigue, Serenity, and Surprise). The PANAS-X can be used to assess affect in the present moment, or during the past week, past month, past year, etc. on a 5-point scale (1 = very slightly or not at all, 5 = extremely). The current study assessed state affect (present moment), prior to and following the experimental manipulation. Scores of positive affect and negative affect were determined by summing responses for items on each

subscale, where higher scores reflected greater positive or negative affect. Watson and Clark (1994) examined present moment scores on the General Positive and Negative Affect scales for 2,213 college students and found strong internal consistency reliability (Positive Affect: $\alpha = .88$; Negative Affect: $\alpha = .85$). In the current study, there was strong internal consistency reliability within the PANAS-X scales of General Positive Affect ($\alpha = .87$) and General Negative Affect ($\alpha = .86$).

Physical Appearance State and Trait Anxiety Scale (PASTAS; Reed, Thompson, Brannick, & Sacco, 1991). The Physical Appearance State and Trait Anxiety Scale is a 16-item questionnaire examining state or trait anxiety about specific parts of the body. Subjects were asked to rate how anxious they felt about their body in the present moment (e.g. "The extent to which I look overweight") on a scale of 0-4 (0 = not at all, 4 = exceptionally so). The PASTAS consists of two subscales of weight-related anxiety (e.g. waist, muscle tone) and non-weight related anxiety (e.g. ears, forehead). The PASTAS measure was completed prior to and following the experimental manipulation. Scores were summed for the full PASTAS measure and for the Weight-Related and Non-Weight-Related subscales. Higher scores reflected greater anxiety about physical appearance. Reed et al. (2001) found strong two-week retest reliability for the entire scale ($r = .87$) and strong internal consistency reliability for the trait and state versions ($.82 < \alpha < .92$). In the current study, there was strong internal consistency reliability within the PASTAS Weight-Related subscale ($\alpha = .85$). There was acceptable internal consistency reliability within the Non-Weight-Related subscale ($\alpha = .72$).

State Self-Esteem Scale (SSES; Heatherton & Polivy, 1991). The State Self-Esteem Scale consists of 20 statements about the self (e.g. "I feel good about myself") for which participants were asked to rate their agreement on a 5-point scale (1 = not at all, 5 = extremely). The SSES

features subscales of Performance, Social, and Appearance self-esteem. The SSES was completed prior to and following the experimental manipulation. Scoring of the SSES was completed by calculating the sum of all of the items in total or for each of the subscales, where higher scores reflected higher self-esteem. Heatherton and Polivy (1991) found strong internal consistency reliability for the scale ($\alpha = .92$). The authors also found that the SSES was sensitive to naturally occurring self-esteem and experimental manipulations in the laboratory. In the current study, the SSES demonstrated strong internal consistency reliability ($\alpha = .90$).

Time Since Event and Impact Ratings. Participants also completed three additional post-manipulation items created by the Principal Investigator. One item asked participants to estimate the month and year in which the body image-related experience that they were instructed to write about took place. Based on this information, the Principal Investigator calculated how long ago, in days, the event occurred (one month was counted as 30 days). The subjects were asked to rate how upset they were in the present moment when thinking about the experience on a scale of 0-10 (0 = not upset, 5 = neutral, 10 = very upset). They were also asked to provide a rating for the extent to which they believed the event would continue to impact them in the future on a scale of 0-10 (0 = will no longer affect me, 5 = neutral, 10 = will still affect me very much). These two ratings were used in statistical analyses to examine how different cognitive processing modes might impact the level of distress experienced after recalling negative experiences and expectations of the long-term impact of the event.

Velten Mood Induction (Velten, 1967, 1968). Upon completion of the study, all participants engaged in a positive mood induction task by reading aloud 20 positive statements selected from Velten's (1967, 1968) complete list of 60 statements. Participants were encouraged to make an effort to feel the sentiments suggested by the statements. The purpose of the positive

mood induction was to counter the negative effects of discussing personal experiences related to body image dissatisfaction, especially for participants who may have been involved in very distressing experiences. A meta-analysis of studies using the Velten mood induction procedure yielded 380 individual effect sizes and revealed that these inductions produced an average effect size of Cohen's $d = .76$, $p < .05$ (Larsen & Sinnett, 1991). In this meta-analysis, average effect sizes were computed for studies that incorporated all of the statements in the standard Velten technique ($d = .88$, $p < .05$) and for studies that utilized a selection of the statements in a modified technique ($d = .67$, $p < .05$). Since modified techniques have also demonstrated adequate effect sizes and since the mood induction was not intended to be a part of the experimental manipulation, the Principal Investigator arbitrarily selected 20 of the statements (in order to abbreviate the task). All participants received the same 20 statements.

Linguistic Inquiry and Word Count (LIWC; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007; Tausczik & Pennebaker, 2010). The narratives written by participants were analyzed using the Linguistic Inquiry and Word Count (LIWC) computer software program. The LIWC is a text analysis program that searches for content falling into categories that were developed using dictionaries and thesauruses. Examples of the categories are linguistics (e.g. tense and use of pronouns and verbs), relativity (e.g. time and space), personal concern (e.g. work and leisure activities), and psychological constructs related to affect (e.g. positive and negative emotion, anxiety), cognition (e.g. thoughts, reasoning), perception (e.g. sight, hearing), and biology/physiology (e.g. body-related, health). The LIWC output also provides general descriptive data about the narrative such as total word count and the percentage of words that were captured by the LIWC dictionary.

Table 1. *Cronbach's Coefficient α Internal Consistency Reliability of Dependent Measures*

Measure	α
RRS (Full Scale)	.87
Depression-Related	.82
Reflection	.72
Brooding	.70
DERS (Full Scale)	.92
Nonacceptance	.91
Goal-Directed Activity	.89
Impulse Control	.83
Emotional Awareness	.83
Access to Strategies	.86
Emotional Clarity	.81
PBRS (Full Scale)	.92
PANAS-X General Positive Affect	.87
PANAS-X General Negative Affect	.86
PASTAS (Full Scale)	.84
Weight-Related	.85
Non-Weight-Related	.72
SSES (Full Scale)	.90
Performance	.83
Social	.82
Appearance	.88

Note: RRS = Ruminative Responses Scale, DERS = Difficulties in Emotion Regulation Scale, PBRS = Positive Beliefs about Rumination Scale, PANAS-X = Positive and Negative Affect Scale–Expanded Form, PASTAS = Physical Appearance State and Trait Anxiety Scale, SSES = State Self-Esteem Scale

Procedures

The Principal Investigator recruited subjects from undergraduate psychology courses and coordinated scheduling of one-hour appointments for participation in the study. Prior to the study, participants were randomly assigned to one of three conditions: abstract, concrete, or distraction. The distraction group served as the control condition. Randomization was completed by using the Statistical Package for the Social Sciences (SPSS) software to generate random numbers, which were then assigned to each condition. During the study, subjects first read and signed forms indicating that they consented to participation in the study. Due to the sensitive

nature of the topic and the wide range of negative experiences participants might think about, they were warned in the informed consent form that they would be asked to discuss experiences that may have been distressing and that they could withdraw from the study at any time.

After obtaining informed consent, participants completed the Demographics Questionnaire, three trait measures of ruminative responses, difficulties engaging in emotion regulation, and positive beliefs about rumination. They also complete baseline measures of state body image dissatisfaction, positive and negative affect, physical appearance anxiety, and self-esteem. Once baseline measures were completed, participants were given the instructions for their respective experimental condition. They typed their narratives in a Microsoft Word document. All participants were asked to think about an experience that led to them feeling dissatisfied with their body image. Participants in the abstract condition were instructed to write for ten minutes about feelings they had when thinking about the experience. Participants in the concrete condition were instructed to write for ten minutes about the objective details of the event. Participants in the distraction condition briefly wrote about the negative experience for three minutes (with no particular direction on processing mode) and then distracted themselves by writing about what they would typically or hypothetically think about or do to distract themselves from negative thoughts and feelings. Although it may have been more distracting for participants to actually engage in the typical or hypothetical activity, this design was more feasible and provided some external validity by personalizing the instructions.

In order to assure confidentiality, all participants were informed that their narrative related to their personal experience would not be linked with any identifying information. The narratives served as a manipulation check to determine whether or not the participants adhered to

the prompts instructing them to write according to the assigned processing mode. The following written instructions were given to participants in the abstract condition:

"Think about an experience that stands out most in your memory, that led to you feeling insecure or dissatisfied with your weight or the appearance of your body and had a strong impact on you. What happened and who is involved? What feelings do you have about the experience and about yourself? What are the meanings, causes, and consequences of your experience?"

These instructions were given to participants in the concrete condition:

"Think about an experience that stands out most in your memory, that led to you feeling insecure or dissatisfied with your weight or the appearance of your body and had a strong impact on you. Visualize and concentrate on your experience. Discuss what happened by focusing your attention on specific details such as who is involved, what is said or done by you and others, when and where does this take place, and what led up to the event?"

Finally, these instructions were given to participants in the distraction condition:

Part 1: "Think about an experience that stands out most in your memory, that led to you feeling insecure or dissatisfied with your weight or the appearance of your body and had a strong impact on you. Briefly write what happened." Part 2: "Thinking about your own life, if you were feeling upset about something or having a bad day, how would you take your mind off of your problems? If you were really trying to make yourself forget about your problems, what would you think or do? Does it involve a particular person, place, or activity? Is there something you usually think or do that helps you distract yourself? Be as detailed as possible." Follow-up Items: "Is this something that you have done in the past, yes or no? If so, how effective was this for distracting yourself on a scale of 0-10 (0 = not at all effective, 10 = very effective)."

After writing their narratives, participants completed post-manipulation measures of state body image dissatisfaction, positive and negative affect, physical appearance anxiety, and self-esteem. Participants in all conditions completed items asking them to estimate how long ago the body image-related experience in their narrative took place, to rate how upset they felt in the present moment when thinking about the event, and to rate how much they expected the event to continue to affect them in the future. Upon completion of these measures, subjects engaged in a positive mood induction task by reading aloud and making an effort to feel the sentiments described by positive statements, which were intended to counteract any emotional distress that they may have experienced during the study. Subjects were then debriefed and offered resources

that they could utilize if they continued to experience distress after leaving the laboratory such as the university's Counseling Center.

With the exception of the paper measures used for the Velten mood induction statements, all measures were administered via the Survey Monkey internet-based program, which uses Secure Sockets Layers (SSL) and Hypertext Transfer Protocol Secure (HTTPS) to encrypt and protect web-based information. The use of computer measures was designed to reduce the amount of time for study completion and to provide direct export of responses on the measures into software analysis programs, which would limit human error associated with data entry from paper measures. All data from the computer measures were exported to Microsoft Excel and SPSS for analyses and were stored on an encrypted flash drive for security.

CHAPTER 3

RESULTS

Exploratory Analyses

Histograms and Q-Q plots demonstrated approximately normal distributions for all of the dependent measures. Mean scores on dependent measures and differences between pre-manipulation and post-manipulation scores are presented for each condition in Table 2.

Table 2. *Means and Standard Deviations of Dependent Measures by Condition*

	Abstract ***n*** **= 50**			**Concrete** ***n*** **= 50**			**Distraction** ***n*** **= 50**		
Measure	**Pre**	**Post**	**Δ**	**Pre**	**Post**	**Δ**	**Pre**	**Post**	**Δ**
RRS (Full Scale)	50.42 (9.95)	____	____	49.52 (10.89)	____	____	51.72 (12.97)	____	____
DERS (Full Scale)	87.84 (19.54)	____	____	83.06 (18.59)	____	____	87.48 (24.60)	____	____
PBRS (Full Scale)	19.06 (7.62)	____	____	19.84 (6.36)	____	____	19.06 (6.44)	____	____
CDRS Discrepancy	1.60 (1.25)	2.08 (1.37)	0.48 (0.12)	1.66 (1.19)	1.78 (1.30)	0.12 (0.11)	1.90 (1.36)	2.16 (1.57)	0.26 (0.21)
PANAS-X GenPos	28.92 (7.21)	22.60 (7.40)	-6.32 (0.19)	29.94 (7.92)	25.54 (8.73)	-4.40 0.81	27.98 (7.48)	23.46 (8.10)	-4.52 (0.62)
PANAS-X GenNeg	15.92 (5.94)	16.76 (6.44)	0.84 (0.50)	15.16 (4.89)	15.32 (4.07)	0.16 (-0.82)	15.16 (6.23)	14.86 (6.28)	-0.30 (0.05)
PASTAS (Full Scale)	14.26 (8.06)	14.98 (8.91)	0.72 (0.85)	16.44 (8.74)	16.86 (10.21)	0.42 (1.47)	16.88 (10.67)	17.06 (11.95)	0.18 (1.28)
SSES (Full Scale)	67.12 (11.81)	65.44 (13.86)	-1.68 (2.05)	66.12 (14.24)	66.74 (14.93)	0.62 (0.69)	66.52 (14.14)	67.68 (15.31)	1.16 (1.17)

Note: Standard deviations are in parentheses; Δ = change from pre-manipulation to post-manipulation, where positive values reflect increases and negative values reflect reductions; RRS = Ruminative Responses Scale, DERS = Difficulties in Emotion Regulation Scale, PBRS = Positive Beliefs about Rumination Scale, CDRS = Contour Drawing Rating Scale (current and ideal body image discrepancy score), PANAS-X GenPos/GenNeg = Positive and Negative Affect Scale–Expanded Form General Positive Affect/General Negative Affect, PASTAS = Physical Appearance State and Trait Anxiety Scale, SSES = State Self-Esteem Scale

Box plots revealed one outlier in the total scores of the DERS measure of emotion regulation difficulties, three outliers in the pre-manipulation CDRS body image dissatisfaction

discrepancy scores, two outliers in the total scores of the pre-manipulation PASTAS measure of physical appearance anxiety, and four outliers in the post-manipulation PASTAS total scores. Statistical testing was conducted using robust analyses that can handle outliers. Statistical testing yielded no significant differences between analyses conducted with and without these outliers. Therefore, all results presented pertain to analyses that were conducted without excluding any data.

Primary Analyses

The experimental design of this study consisted of a within-subjects effect (time: pre-manipulation, post-manipulation) and a between-subjects effect (cognitive processing mode: abstract construal, concrete construal, distraction). Measures that were completed prior to and following the experimental manipulation were analyzed with Repeated Measures ANOVAs in SPSS, which allowed simultaneous input of the within-subjects independent variable (time) and the between-subjects independent variable (cognitive processing mode). Repeated Measures ANOVAs are robust and account for any significant baseline differences among conditions in scores on measures of the dependent variable. A significant effect of cognitive processing mode across time would be reflected through significant interactions between these two effects in the Repeated Measures ANOVAs on dependent measures of state body image dissatisfaction (CDRS), positive and negative affect (PANAS-X), physical appearance anxiety (PASTAS), and self-esteem (SSES). Paired *t* tests were also conducted for each condition separately to determine the effect of the rumination or distraction manipulation on changes in scores on the dependent measures from baseline to post-manipulation. A statistical significance level of .05 (2-tailed) was

used for all statistical analyses and η_p^2 effect sizes were interpreted as .01 = small, .06 = medium, and .14 = large (Cohen, 1988).

Body Image Dissatisfaction

Paired *t* tests revealed that there was a significant increase in body image dissatisfaction from pre-manipulation to post-manipulation for subjects who ruminated abstractly, $t(49) = -5.25$, $p < .001$, and for subjects who distracted themselves, $t(49) = -2.65$, $p < .05$. However, there was no significant effect of concrete rumination on change in body image dissatisfaction from pre-manipulation to post-manipulation, $t(49) = -1.00$, $p = .32$.

Analyses of baseline measures revealed that a covariate of body image dissatisfaction was appearance-related self-esteem, so further analyses of body image dissatisfaction controlled for the covariate[1]. When controlling for the variable of baseline appearance-related self-esteem, a Repeated Measures Analysis of Covariance (ANCOVA) yielded a significant interaction between cognitive processing-mode and time, $F(2, 146) = 3.17$, $p < .05$, $\eta_p^2 = .04$. Since post-hoc tests of multiple comparisons such as the Bonferroni procedure are used to compare the means of levels of between-subjects variables rather than the interaction of within-subjects and between-subjects variables, a Bonferroni test of multiple comparisons was conducted using the pre-manipulation and post-manipulation body image dissatisfaction difference scores for each

[1] Analyses also revealed that another covariate of baseline body image dissatisfaction was weight-related physical appearance anxiety. The interaction between cognitive processing-mode and time was also significant for the measure of body image dissatisfaction when controlling for the variable of baseline weight-related physical appearance anxiety, $F(2, 146) = 3.82$, $p < .05$, $\eta_p^2 = .05$. The baseline appearance-related self-esteem and the weight-related physical appearance anxiety variables were not simultaneously entered as covariates in the ANCOVA model due to the significant negative correlation between them, Pearson's $r = -.71$, $p < .001$, which violates the ANCOVA assumption that there are no strong correlations between covariates entered simultaneously to ensure that each covariate contributes unique variance to the model.

condition (not to be confused with the term "discrepancy score" which refers to the difference between the current and ideal body type selected by participants on the CDRS measure). The Bonferroni test revealed that the abstract group experienced a significantly greater increase in body image dissatisfaction ($M = 0.48$, $SD = 0.65$) than the concrete group ($M = 0.12$, $SD = 0.85$), $p < .05$. Figure 1 illustrates the pre-manipulation and post-manipulation adjusted mean body image dissatisfaction for each condition when the baseline appearance-related self-esteem covariate was entered.

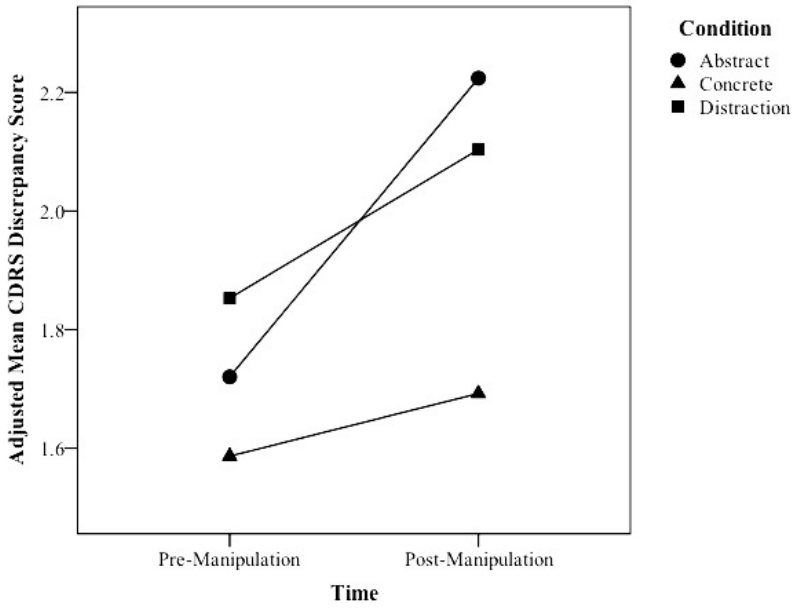

Figure 1. Pre-manipulation and Post-manipulation CDRS Discrepancy Score.

Contrast coefficient coding was used for planned orthogonal comparisons of conditions to test two hypotheses. The first hypothesis was that the subjects in the abstract condition would experience a greater increase in body image dissatisfaction than the combination of the concrete and distraction conditions. The second hypothesis was that the distraction condition would experience a smaller increase in body image dissatisfaction than the combination of the abstract and concrete rumination conditions. Contrasts in SPSS compare levels of the between-subjects

factors, but since these hypotheses also include the factor of time, contrasts were used to compare the pre-manipulation and post-manipulation mean body image dissatisfaction difference scores. Contrasts were utilized to compare the body image dissatisfaction difference scores for each condition to the combination of the other two conditions when the baseline appearance-related self-esteem covariate was entered. The contrast comparing the abstract condition to the combination of the concrete and distraction conditions was significant ($p < .05$), demonstrating that the subjects in the abstract condition experienced a greater increase in body image dissatisfaction from pre-manipulation to post-manipulation. The contrast comparing the distraction condition to the abstract and concrete rumination conditions was not significant ($p = .78$). However, the contrast comparing the concrete condition to the combination of the abstract and distraction conditions was significant ($p < .05$), demonstrating that subjects who engaged in concrete, objective cognitive processing experienced a smaller increase in body image dissatisfaction from pre-manipulation to post-manipulation relative to subjects who engaged in abstract, evaluative rumination and distraction.

Affect

Analyses of affect revealed that subjects in each condition experienced a significant reduction in scores from pre-manipulation to post-manipulation on the PANAS-X subscales of General Positive Affect (ps < .001), Basic Positive Affect (ps < .001), Self-Assurance (ps < .02), Joviality (ps < .001), Attentiveness (ps < .001) and Serenity (ps < .01). Abstract construal resulted in a significant increase in guilt from pre-manipulation to post-manipulation, $t(49) = -2.36$, $p < .05$. However, there was no significant change in guilt for subjects who ruminated concretely, $t(49) = -.98$, $p = .33$, or distracted themselves, $t(49) = .66$, $p = .51$. There was a

significant reduction in shyness for subjects who ruminated concretely, $t(49) = 3.24$, $p < .01$, and for subjects who distracted themselves, $t(49) = 2.92$, $p < .01$. There was no change in shyness for subjects who ruminated abstractly, $t(49) = 1.39$, $p = .17$. A Repeated Measures ANOVA revealed that there was a significant interaction between cognitive processing mode and time for the subscales of Fatigue, $F(2, 147) = 3.30$, $p < .05$, $\eta_p^2 = .04$, and Self-Assurance, $F(2, 147) = 3.28$, $p < .05$, $\eta_p^2 = .04$. Figures 2 and 3 illustrate the mean ratings of self-assurance and fatigue at baseline and post-manipulation. A post-hoc Bonferroni test on the pre-manipulation and post-manipulation difference scores on the subscale of Fatigue revealed that there was a significant difference between the concrete group ($M = -1.20$, $SD = 3.68$) and the distraction group ($M = 0.24$, $SD = 2.13$), $p < .05$. A Bonferroni test on the pre-manipulation and post-manipulation self-assurance difference scores revealed that there was a significant difference between the abstract group ($M = -2.92$, $SD = 3.06$) and the concrete group ($M = -1.30$, $SD = 3.78$), $p < .05$. Contrasts comparing the mean change in scores from pre-manipulation to post-manipulation for the abstract condition and the combination of the concrete and distraction conditions were significant, $p < .05$, for the affect subscales of Self-Assurance (A: $M = -2.92$, $SD = 3.06$; C: $M = -1.30$, $SD = 3.78$; D: $M = -1.86$, $SD = 2.71$), Basic Positive Affect (A: $M = -3.74$, $SD = 2.90$; C: $M = -2.53$, $SD = 3.50$; D: $M = -2.80$, $SD = 2.38$), and Joviality (A: $M = -6.50$, $SD = 4.98$; C: $M = -4.70$, $SD = 5.74$; D: $M = -4.74$, $SD = 3.83$). A contrast comparing the concrete condition to the combination of the abstract and distraction conditions was significant, $p < .05$, for the subscale of Self-Assurance. A contrast comparing the distraction condition to the combination of the abstract and concrete conditions was significant, $p < .05$, for the subscale of Fatigue (A: $M = -0.76$, $SD = 2.58$; C: $M = -1.20$, $SD = 3.68$; D: $M = 0.24$, $SD = 2.13$).

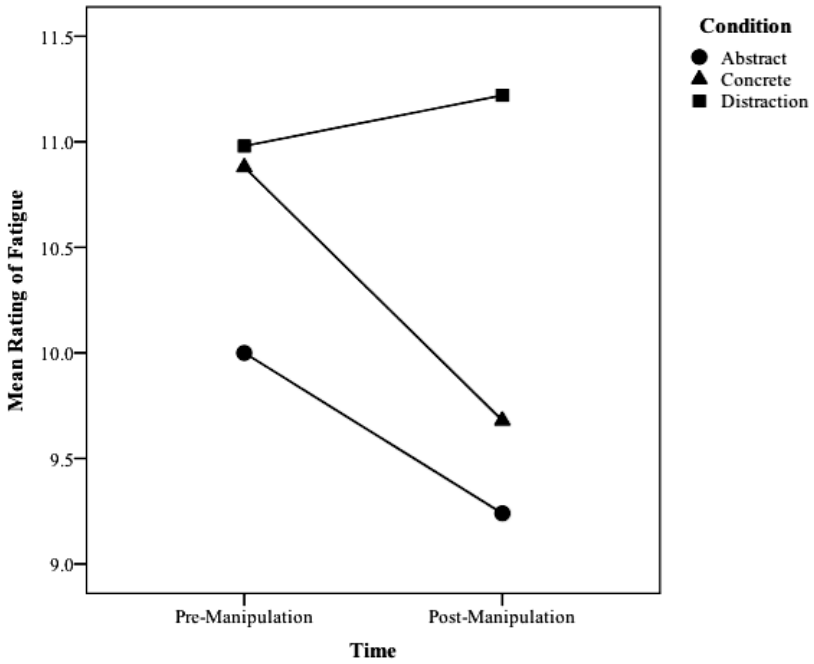

Figure 2. Pre-manipulation and Post-manipulation Fatigue Rating.

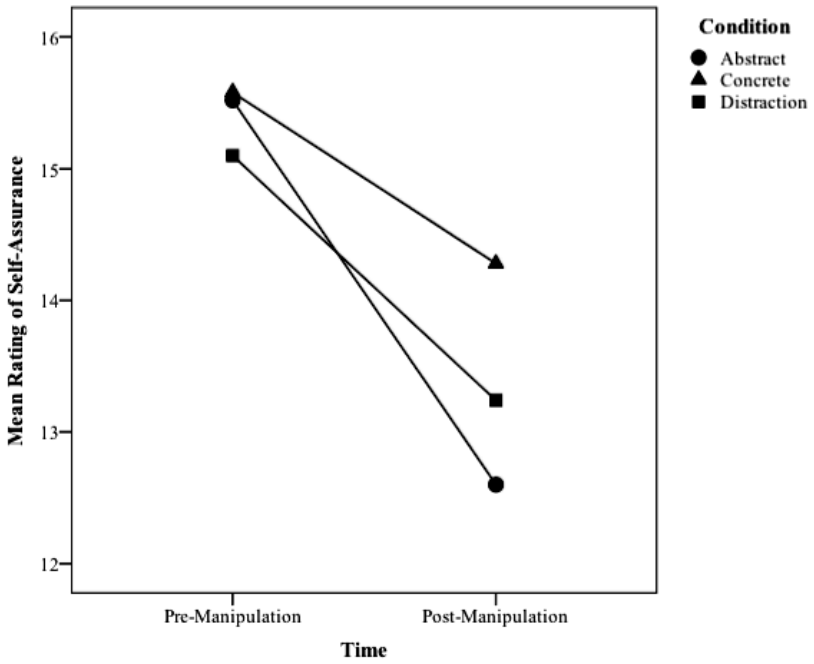

Figure 3. Pre-manipulation and Post-manipulation Self-assurance Rating.

Self-Esteem

Analyses of self-esteem revealed that distraction resulted in a significant increase in scores from pre-manipulation to post-manipulation on the SSES Performance subscale, $t(49) = -3.16$, $p < .01$. However there was no significant change in self-rated performance for subjects who ruminated abstractly, $t(49) = 1.14$, $p = .26$, or concretely, $t(49) = -.05$, $p = .96$. There was a significant reduction in scores on the SSES Appearance subscale for subjects who ruminated abstractly, $t(49) = 3.02$, $p < .01$, but there was no significant change for subjects who ruminated concretely, $t(49) = .76$, $p < .45$, or distracted themselves, $t(49) = .14$, $p = .89$. A Repeated Measures ANOVA revealed that there was a significant interaction between cognitive processing mode and time for the SSES Performance subscale, $F(2, 147) = 3.70$, $p < .05$, $\eta_p^2 = .05$. Figure 4 illustrates the pre-manipulation and post-manipulation mean rating of performance-related self-esteem for each condition. A Bonferroni test on the pre-manipulation and post-manipulation difference scores in performance related self-esteem revealed that there was a significant difference between the abstract group ($M = -0.46$, $SD = 2.84$) and the distraction group ($M = 1.04$, $SD = 2.33$), $p < .05$. Contrasts comparing the mean change in scores from pre-manipulation to post-manipulation for the abstract condition and the combination of the concrete and distraction conditions was significant, $p < .05$, for the full SSES measure (A: $M = -1.68$, $SD = 6.87$; C: $M = 0.62$, $SD = 8.42$; D: $M = 1.16$, $SD = 6.27$), and the subscales of Performance (A: $M = -0.46$, $SD = 2.84$; C: $M = 0.02$, $SD = 2.95$; D: $M = 1.04$, $SD = 2.33$) and Appearance (A: $M = -1.20$, $SD = 2.81$; C: $M = -0.34$, $SD = 3.16$; D: $M = -0.04$, $SD = 2.05$). A contrast comparing the distraction condition to the combination of the abstract and concrete conditions was significant, $p < .01$, for the Performance subscale. Contrasts comparing the concrete condition to the

combination of the abstract and distraction conditions were not significant for the full SSES measure or any of the SSES subscales.

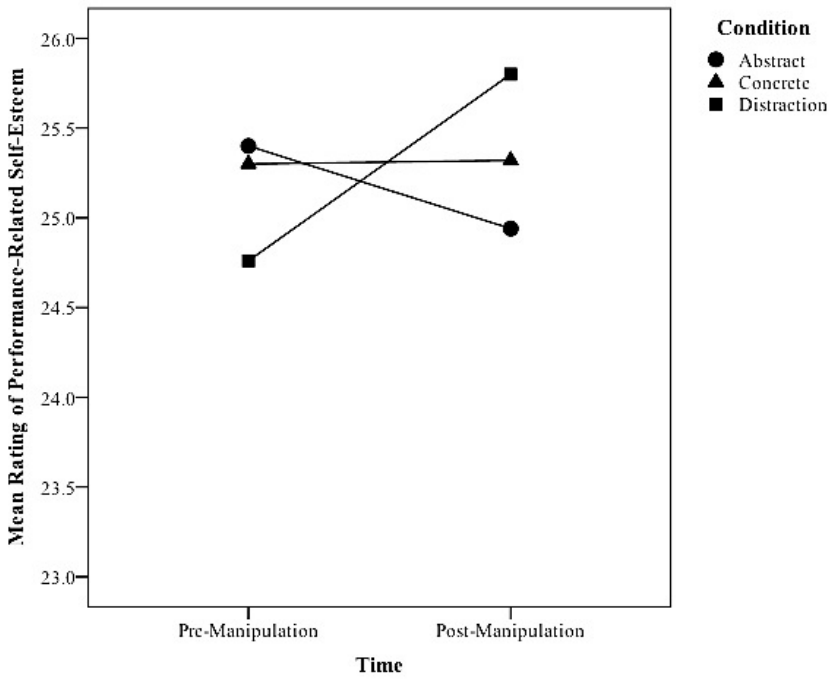

Figure 4. Pre-manipulation and Post-manipulation Performance-related Self-esteem Rating.

Physical Appearance Anxiety

Analyses of physical appearance anxiety revealed no significant interaction between cognitive processing mode and time and no main effects of these variables for the full PASTAS measure, nor for the Weight-Related and Non-Weight-Related subscales. Furthermore, there were no significant contrasts among the conditions.

Time Since Event and Impact of Event

Participants estimated the month and year in which their body image-related experience took place. An approximation for the number of days since the event occurred was calculated (A:

M = 1343, *SD* = 1421; C: *M* = 1597, *SD* = 1356; D: *M* = 1320, *SD* = 1198). A One-Way ANOVA revealed no significant differences among the conditions in the mean number of days since the event occurred, $F(2, 147) = .67$, $p = .51$, $\eta_p^2 = .01$.

Participants rated how upset they felt when thinking about the body image-related experience on a scale of 0-10 (0 = not upset, 5 = neutral, 10 = very upset) and group means were calculated (A: *M* = 5.22, *SD* = 2.41; C: *M* = 4.52, *SD* = 3.05; D: *M* = 3.82, *SD* = 2.72). A One-Way ANOVA, controlling for the number of days since the event occurred, revealed a significant difference among the conditions, $F(2, 146) = 3.25$, $p < .05$, $\eta_p^2 = .04$. A Bonferroni test of multiple comparisons revealed that there was a significant difference between the abstract and distraction conditions, $p < .05$. It should be noted that these ratings were not found to be mediators or moderators of any of the significant findings previously discussed.

Participants rated how much they believed the body image-related experience would continue to impact them in the future on a scale of 0-10 (0 = will no longer affect me, 5 = neutral, 10 = will still affect me very much) and group means were calculated (A: *M* = 5.98, *SD* = 2.67; C: *M* = 6.00, *SD* = 3.31; D: *M* = 5.56, *SD* = 2.76). There were no significant differences among the conditions, $F(2, 147) = .36$, $p = .70$, $\eta_p^2 = .01$.

Secondary Analyses

Correlations

Pearson product-moment correlations were used to determine the relationships among dependent measures. The intercorrelations among baseline measures are shown in Table 3. There was a significant positive correlation between BMI and both the baseline CDRS measure of body image dissatisfaction, $r = .37$, $p < .01$, and the baseline PASTAS measure of physical appearance

anxiety, $r = .36$, $p < .01$. There was also a significant negative correlation between BMI and the baseline measure of self-esteem, $r = -.23$, $p < .01$. These three correlations demonstrate that subjects with higher BMI also experienced greater body image dissatisfaction and anxiety about physical appearance, and they reported having lower self-esteem.

As hypothesized, there was a significant positive correlation between the RRS measure of ruminative response style and the DERS measure of emotion regulation, $r = .60$, $p < .01$, suggesting that a tendency to engage in rumination was associated with difficulty regulating emotions. As expected, there was a significant positive correlation between the RRS measure and the PBRS measure of perceived utility of rumination, $r = .27$, $p < .01$, suggesting that a tendency to engage in rumination is associated with beliefs that the rumination is beneficial. There was a significant positive correlation between the RRS measure and the baseline CDRS measure, $r = .19$, $p < .05$, suggesting that subjects with a greater tendency to engage in rumination also experienced greater body image dissatisfaction. Greater tendency to engage in rumination was also associated with greater general negative affect, $r = .23$, $p < .01$, greater physical appearance anxiety, $r = .38$, $p < .01$, and lower self-esteem, $r = -.42$, $p < .01$, prior to completing the experimental manipulation.

Partial correlations were used to determine if confounding variables could explain the significant correlations, where controlling for the influence of the confounding variables might result in the correlations no longer being significant. Although the RRS measure was still significantly correlated with the PBRS measure when controlling for the full DERS measure, $r = .21$, $p < .05$, there was no longer a significant correlation when simultaneously controlling for the DERS subscales of Nonacceptance and Strategies, $r = .16$, $p = .06$. The correlation between the RRS measure and the DERS measure remained significant after controlling for the PBRS

variable, $r = .58$, $p < .01$, demonstrating that controlling for beliefs about the benefits of rumination had very little effect on the strength of the relationship between ruminative response styles and difficulties regulating emotions. The RRS measure was no longer significantly correlated with the baseline CDRS measure when controlling for BMI, $r = .12$, $p = .16$, difficulties regulating emotions, $r = .07$, $p = .41$, baseline physical appearance anxiety, $r = .03$, $p = .75$, and baseline self-esteem, $r = .06$, $p = .51$.

Table 3. *Pearson Product-moment Correlation Matrix of Select Baseline Measures*

Variable	BMI	RRS	DERS	PBRS	Pre-CDRS	Pre-GenPos	Pre-GenNeg	Pre-PASTAS	Pre-SSES
BMI	——								
RRS	.24**	——							
DERS	.22**	.60**	——						
PBRS	.02	.27**	.19*	——					
Pre-CDRS	.37**	.19*	.23**	.09	——				
Pre-GenPos	-.18*	-.15	-.34**	.04	-.29**	——			
Pre-GenNeg	-.03	.23**	.37**	.22**	.08	.00	——		
Pre-PASTAS	.36**	.38**	.43**	.07	.56**	-.20*	.18*	——	
Pre-SSES	-.23**	-.42**	-.56**	-.26**	-.35**	.30**	-.40**	-.63**	——

Note: *$p < .05$, **$p < .01$; BMI = Body Mass Index, RRS = Ruminative Responses Scale, DERS = Difficulties in Emotion Regulation Scale, PBRS = Positive Beliefs about Rumination Scale, Pre-CDRS = Pre-Manipulation Contour Drawing Rating Scale (current and ideal body image discrepancy score), Pre-GenPos = Pre-Manipulation General Positive Affect, Pre-GenNeg = Pre-Manipulation General Negative Affect, Pre-PASTAS = Pre-Manipulation Physical Appearance State and Trait Anxiety Scale, Pre-SSES = Pre-Manipulation State Self-Esteem Scale

Racial Differences

Analyses were conducted to determine the role of racial differences. Given the over-representation of Caucasian subjects in this study and the lack of power to make comparisons to the smaller samples of each other racial/ethnic category, analyses compared Caucasians (n = 84) to non-Caucasians (n = 66). The limitations of combining multiple racial designations into one group are addressed in Chapter 4. There was no significant effect of race on changes in scores on measures of any of the dependent variables from pre-manipulation to post-manipulation.

Narrative Analysis

All of the written narratives were analyzed as a manipulation check to determine whether or not the participants adhered to the instructions they were given. Two independent raters were trained by the Principal Investigator to distinguish between the abstract, concrete, and distraction narratives. The independent raters were first asked to read each of the narratives and to guess the condition for which each narrative was written. Afterward, the independent raters were told the actual condition to which each participant was assigned and they were asked to rate the narratives for adherence to the corresponding prompts on a scale of 0-10 (0 = no adherence, e.g. the subject wrote about a topic unrelated to body image, 5 = some adherence, e.g. the subject wrote about a topic related to body image but strayed from the assigned processing mode, 10 = complete adherence, e.g. the subject wrote about a topic related to body image precisely according to the instructions for the assigned processing mode).

The accuracy of each rater and mean ratings of adherence for each condition and overall are presented in Table 4. Interrater reliability of ratings of adherence was adequate (r = .62). Interrater reliability of predictions of subjects' assigned conditions is demonstrated in Table 5.

Interrater reliability was determined by computing the rate of overall agreement between the raters, 74.67%, and the corrected rate of agreement due to chance (Cohen, 1960), Cohen's kappa, $\kappa = .62$. Both raters exhibited above average accuracy in identifying the narratives written for the distraction condition (96% and 100% accuracy). They seemed to experience more difficulty identifying the narratives written for the abstract (52% and 78% accuracy) and concrete conditions (58% and 76% accuracy). However, when asked to rate the extent to which they believed subjects adhered to the instructions for their conditions, both raters produced above average mean ratings for all conditions. This suggests that the raters felt that most subjects completely adhered to their instructions, but the instructions given to people in the abstract and concrete groups may not have been as distinct as intended. Given this possible lack of distinction between the abstract and concrete conditions, based upon reading the narratives, it is difficult to make sense of the statistically significant, between-group differences previously reported.

Table 4. *Accuracy of Identifying Conditions and Ratings of Adherence to Instructions*

Rater 1

Condition	*n*	Accuracy (%)	Mean Rating (*SD*)	Min. Rating	Max. Rating
Abstract	50	52	9.10 (1.78)	5	10
Concrete	50	58	9.20 (1.46)	5	10
Distraction	50	96	10.00 (0.00)	10	10
Overall	150	68.67	9.43 (1.38)	5	10

Rater 2

Condition	*n*	Accuracy (%)	Mean Rating (*SD*)	Min. Rating	Max. Rating
Abstract	50	78	8.74 (1.61)	5	10
Concrete	50	76	8.52 (1.46)	6	10
Distraction	50	100	9.86 (0.76)	5	10
Overall	150	84.67	9.04 (1.45)	5	10

Note: Interrater reliability of ratings of adherence (overall) was .62

Table 5. *Interrater Reliability of Predictions of Subjects' Assigned Conditions*

		Rater 1			
		Abstract	Concrete	Distraction	Total
Rater 2	Abstract	**31**	19	1	51
	Concrete	15	**33**	1	49
	Distraction	1	1	**48**	50
Total		47	53	50	150

Note: When identifying conditions, the rate of overall agreement (cells in bold) between raters was 74.67% (rate of agreement corrected due to chance: $\kappa = .62$).

All of the written narratives were processed through the Linguistic Inquiry and Word Count software. The LIWC output provided each subject's total word count and the percentage of total words that fell within specific linguistic categories. A One-Way ANOVA revealed that there were significant differences in total word count among the three conditions, $F(2, 147) = 11.88$, $p < .001$, $\eta_p^2 = .14$. A post-hoc Bonferroni test revealed that there were significant differences in total word count between the abstract ($M = 346.04$, $SD = 126.78$) and distraction ($M = 465.02$, $SD = 136.94$) groups, $p < .001$, and between the concrete ($M = 366.58$, $SD = 127.48$) and distraction groups, $p < .01$. This is not surprising, given that subjects in the distraction condition completed a two-part writing task, whereas subjects in the abstract and concrete rumination conditions focused on one topic. One-Way ANOVAs and post-hoc Bonferroni tests were used to determine if there were any between-group differences in mean percentage of total words for each category when controlling for total word count. Significant findings are presented in Table 6.

Individuals in the distraction group, who were instructed to briefly write about a negative, body image-related experience and then discuss distraction strategies, wrote narratives that included a significantly smaller mean percentage of body-related words than subjects in the

abstract and concrete rumination groups, a significantly larger mean percentage of words related to leisure than subjects in the abstract group, and a significantly larger mean percentage of words related to religion than subjects in the abstract and concrete groups. Although it was expected that individuals in the abstract group would write narratives including more words related to negative emotion than the other two conditions, subjects in the distraction group wrote narratives including a greater mean percentage of words related to positive and negative emotion than subjects in the abstract and the concrete conditions. Since subjects in the distraction condition wrote about strategies that contributed to their positive affect and reduced their negative affect, it is possible that the LIWC dictionary may have captured both positive and negative affect-related words.

Subjects in the abstract group, who were instructed to write about the meanings, causes, and consequences of their experiences, wrote narratives that included a significantly larger mean percentage of words that were insight-oriented than individuals in the concrete group. Subjects in the concrete group, who were instructed to write about their experiences in an objective, non-evaluative manner, wrote narratives with a significantly lower mean percentage of words related to cognitive processes than individuals in the abstract group, and a significantly lower mean percentage of words related to affective processes, anxiety, positive and negative emotion, and sadness than individuals in the distraction group.

Table 6. *Means and Standard Deviations of LIWC Categories by Condition*

LIWC Category	Abstract WC = 346.04 (126.78)	Concrete WC = 366.58 (127.48)	Distraction WC = 465.02 (136.94)	Category Examples
Affective Process** [bc]	5.19 (1.58)	4.99 (1.63)	7.41 (1.43)	awkward, bad, happy, mad
Anxiety** [c]	0.98 (0.65)	0.68 (0.54)	1.22 (0.76)	afraid, embarrass, tense
Biological Process** [bc]	4.91 (1.74)	4.64 (1.98)	2.46 (1.17)	ache, nerve, sick, sweat
Body** [bc]	2.46 (1.61)	1.95 (1.15)	0.96 (0.66)	fat, legs, skinny, stomach
Cognitive Process** [ac]	20.20 (2.92)	18.45 (2.80)	20.99 (2.20)	believe, feel, know, think
Discrepancy** [bc]	1.85 (1.08)	1.64 (1.02)	2.41 (1.07)	need, ought, want, wish
Exclusive* [c]	3.28 (1.35)	2.91 (1.12)	3.27 (1.23)	except, not, rather, without
Feel** [ab]	2.42 (0.90)	1.74 (1.07)	1.78 (0.79)	grab, rough, scratch, touch
Filler** [a]	0.52 (0.45)	0.27 (0.35)	0.41 (0.37)	blah, oh well
Future Tense** [c]	0.86 (0.78)	0.71 (0.66)	1.09 (0.74)	should, will, won't
Health* [c]	0.99 (0.81)	1.20 (1.12)	0.69 (0.65)	disease, heal, hospital, pain
Ingestion** [bc]	2.21 (1.47)	2.06 (1.68)	0.86 (0.81)	eat, food, drink, swallow
Inhibition** [bc]	0.37 (0.41)	0.30 (0.38)	0.55 (0.43)	avoid, prevent, refuse, stop
Insight** [a]	3.91 (1.25)	3.08 (1.19)	3.61 (1.25)	aware, mean, realize, reason
Leisure* [b]	1.16(1.29)	1.33(1.07)	1.70(1.06)	iPod, jog, movie, play, read
Negative Emotion** [bc]	2.65 (1.04)	2.15 (1.07)	3.74 (1.16)	awful, fail, fear, hate, lame
Past Tense** [bc]	7.07 (2.81)	8.13 (2.71)	4.33 (1.77)	became, happened, said
Perceptual** [ab]	4.42 (1.77)	3.72 (1.29)	3.40 (1.00)	feel, hear, see, smell, taste
Positive Emotion** [bc]	2.50 (1.37)	2.77 (1.36)	3.54 (1.19)	glad, hope, like, love
Preposition** [bc]	12.16 (1.81)	12.95 (1.63)	13.93 (1.86)	about, around, during, in
Present Tense** [ac]	6.54 (2.55)	4.94 (2.29)	7.80 (2.44)	am, can, do, is, seem
Personal Pronoun* [b]	15.72 (2.28)	14.85 (1.94)	14.28 (1.83)	his, mine, my, our, their
Pronoun* [b]	21.63 (2.83)	20.53 (2.23)	20.08 (2.29)	her, him, me, them, us, we
Relativity* [a]	13.27 (2.57)	14.47 (2.32)	13.65 (2.38)	always, later, often, older
Religion** [bc]	0.02 (0.09)	0.02 (0.07)	0.27 (0.36)	church, pray, temple
Sadness* [c]	0.67 (0.57)	0.49 (0.49)	0.85 (0.74)	cry, helpless, hurt, regret
Tentative** [bc]	2.67 (1.45)	2.40 (1.21)	4.08 (1.25)	guess, maybe, perhaps

Note: WC = mean and standard deviation (in parentheses) of total word count of condition; cell means and standard deviations of each category represent percentage of total word count prior to controlling for total word count in the ANOVA model; the list of LIWC categories presented only includes those for which the main effect of condition was significant, when controlling for total word count: *$p < .05$, **$p < .01$; *abc*: a post-hoc Bonferroni test of multiple comparisons demonstrated significant differences between *a*- Abstract and Concrete, *b*- Abstract and Distraction, *c*- Concrete and Distraction

CHAPTER 4

DISCUSSION

The current study distinguished between three different modes of cognitive processing of negative, body image-related experiences: abstract construal, concrete construal, and distraction. Participants wrote about personal experiences contributing to body image dissatisfaction such as being teased by peers or being criticized by family members. Some participants were instructed to engage in prolonged thought about the negative experience by writing in an abstract/evaluative or concrete/objective manner, or they were instructed to distract themselves by writing about a neutral topic. Multiple methods were used to analyze the data including statistical analyses through the Statistical Package for Social Sciences (SPSS), linguistic analyses through the Linguistic Inquiry and Word Count (LIWC) software, and independent raters.

The results of this study demonstrated that style of rumination may contribute to negative outcomes more than just the act of rumination itself. Individuals who engaged in abstract rumination of negative, body image-related events experienced a significantly greater increase in body image dissatisfaction and a significantly greater reduction in positive affect and appearance-related self-esteem than subjects who distracted themselves or developed a concrete construal of the event. These results highlight the maladaptive quality of abstract rumination. Concrete construal of the event, though still ruminating about the event, on average, resulted in no significant change in body image dissatisfaction, providing some evidence for the adaptive nature of concrete rumination in the domain of body image. Although concrete construal still resulted in significant reductions in self-assurance and in basic and general positive affect, contrasts revealed that this cognitive processing mode was less detrimental than abstract rumination and distraction for outcomes such as body image dissatisfaction and self-assurance.

Although there were positive outcomes associated with distraction such as an increase in performance-related self-esteem, there were also negative outcomes. Subjects in the distraction condition did not engage in prolonged thought about the event and they may have harbored unresolved feelings about the experience. These unexpressed feelings may have contributed to the significant increase in body image dissatisfaction and the significant reductions in measures of positive affect such as serenity and basic and general positive affect. Additionally, individuals in the distraction condition experienced the greatest increase in fatigue. This increase in fatigue may be related to the two-part narrative prompt (requiring more time to complete) or it may reflect the strenuous effort exerted by participants while distracting themselves from thinking about their negative experiences. Subsequent discussion of limitations in this study will address the possibility that the distraction task was not as distracting as intended, causing individuals to continue thinking about their negative experiences.

The mixed results found within each of the conditions could impact conceptualization of rumination. Perhaps whether or not rumination is adaptive or maladaptive is dependent upon the outcomes, where favorable outcomes may be considered adaptive, and unfavorable outcomes may be considered maladaptive. Watkins (2008) labeled repetitive thought as "constructive" if it was associated with positive outcomes such as reduced negative affect, increased positive affect, improved mental or physical health, increased helpful behaviors such as active problem-solving, and improved cognitive functioning such as better concentration. Conversely, Watkins labeled repetitive thought as "unconstructive" if it was associated with contrasting negative outcomes. Examination of outcomes related to rumination is one method of conceptualizing rumination as adaptive or maladaptive, but this approach may be limited due to the role of social norms in determination of what is considered adaptive (or "normal") and maladaptive (or "pathological").

In this study, subjects with a tendency to engage in rumination also reported more difficulty regulating their emotions (e.g. accepting emotional responses to the event or engaging in goal-directed activity following the negative event). Similar to past research on beliefs about the utility of rumination (Papageorgiou & Wells, 2001a), the results of this study demonstrated that subjects with a greater tendency to engage in ruminative responses were also more likely to believe that they were benefitting from ruminating. This study found that two factors that may partially explain the relationship between tendency to engage in rumination and positive beliefs about the utility of rumination are difficulty accepting emotional responses (nonacceptance) and a lack of strategies for regulating emotions. It is possible that individuals who feel negatively about the emotions they are experiencing believe that ruminating will help them better understand their emotions and get rid of the undesired feelings. It is also possible that individuals who feel that they lack strategies for regulating their emotions when they are upset believe that rumination will help provide insight that they can use to resolve their emotional conflict. There is still a need to determine what other factors could moderate or mediate the relationships among the variables of ruminative response styles, positive beliefs about rumination, and difficulty engaging in emotion regulation, such as the perceived degree of controllability of life experiences (Treynor et al., 2003), and confidence in ability to solve problems (Papageorgiou & Wells, 1999, 2001b).

Implications

Distinguishing which styles of rumination lead to more detrimental outcomes can have a significant impact on psychotherapy. Often times, when working with individuals with mood and anxiety disorders, an outcome goal of therapy may be to refrain from engaging in ruminative

response styles altogether. Studies have demonstrated the automaticity of ruminative response styles (Nolen-Hoeksema et al., 1993), suggesting that complete disengagement from these behaviors may be very difficult for clients. Another tactic that therapists could use is to help clients delineate between abstract and concrete rumination so that, even though clients who develop a concrete construal of events are still engaging in rumination, they can learn to do so in a more adaptive and objective manner. Therapists should only recommend transitioning to concrete rumination in psychopathological domains where there is empirical support for adaptive outcomes associated with concrete construal.

Another major implication associated with the current study involves the use of distraction as a coping strategy. Participants in this study reported utilizing a variety of distraction techniques ranging from innocuous to harmful such as reading, listening to music, exercising, drinking alcohol, and cutting oneself. Previous research has found that, unlike maladaptive rumination, distraction promotes goal-directed activity (Nolen-Hoeksema, 1987; Nolen-Hoeksema & Morrow, 1993; Nolen-Hoeksema, et al., 1993). However, in this study, subjects who engaged in distraction experienced some negative outcomes such as increased body image dissatisfaction and increased fatigue.

It is worth identifying potential maladaptive qualities associated with distraction. For example, individuals in psychotherapy may be told to develop coping strategies that they may engage in when feeling anxious or depressed. It is possible that these individuals may develop a tendency to use distraction to engage in experiential avoidance of situations that cause discomfort. Use of distraction as an avoidant coping strategy may encourage individuals to maintain maladaptive behavioral responses to negative life circumstances, which can be very dangerous, as in the case of cutting oneself. In this study, some outcomes associated with

concrete rumination were more favorable than outcomes associated with abstract construal or distraction, which provides support for exploration of feelings underlying one's distress in an objective manner before transitioning to use of coping skills. If individuals prioritize distraction over cognitive and emotional processing of experiences, they may exacerbate their underlying symptoms of distress or they may exhaust their cognitive and emotional faculties (similar to the participants in this study who may have experienced an increase in fatigue as a result of distraction).

Limitations

There was a limitation in the data that was collected prior to the experimental manipulation. Although participants completed trait measures of difficulties regulating their emotions, their tendency to engage in rumination, and their beliefs about the benefits of rumination, there was no trait measure assessing their tendency to engage in abstract, analytical rumination or concrete, objective rumination. Correlations between a trait measure assessing typical cognitive processing mode and other trait measures assessing difficulties regulating emotions and positive beliefs about rumination could have provided more information regarding the differential effects of abstract or concrete construal on these outcomes.

The negative outcomes associated with the distraction in this study (increased body image dissatisfaction and fatigue) may have been influenced by a potential flaw in the design of the distraction condition. Subjects in the distraction condition were instructed to write about strategies that they typically or hypothetically use to distract themselves when experiencing low mood. This condition was designed to be personalized, similar to the abstract and concrete rumination conditions. It is possible that this was a weak manipulation of distraction, where

subjects may have continued to think about their negative experiences. A stronger manipulation may have involved having participants actually engage in the distraction activities that they wrote about. However, this might not be feasible for strategies requiring access to materials not available in the laboratory setting.

Independent raters experienced some difficulty correctly identifying narratives written for the abstract and concrete conditions, and they often confused one condition for the other. This suggests that the instructions given to participants in these conditions may not have been as distinct as intended by the Principal Investigator. This speculation, however, does not account for the statistically significant differences across conditions for some of the outcome measures. It is also possible that the procedure used to determine interrater reliability in identification of participants' assigned experimental conditions may have been flawed. After reading the narratives and guessing the conditions, the raters were asked to rate the extent to which the narrative reflected that condition. The raters may have been influenced by demand characteristics associated with expectations developed after being told the participants' actual conditions. The raters may have developed confirmation biases, where they may have searched for indicators within the narratives that reflected the assigned conditions. An alternative method of assessing interrater reliability that could have been utilized is asking the independent raters to rate the extent to which the narratives reflected each of the abstract, concrete, and distraction conditions.

There are limitations associated with the statistical analyses of outcome differences among racial groups. Due to low sample sizes of each racial minority group in comparison to the Caucasian group, analyses of racial differences in this study compared outcomes of Caucasians to those of non-Caucasians. By subsuming all racial minority groups into one non-Caucasian group, there is an underlying assumption of homogeneity among the racial groups. In reality,

there may have actually been significant differences among the various racial groups. More equal representation of ethnic groups is needed in order to test for differences among the racial groups. It should be noted that there would still be a limitation in that approach, given the heterogeneity among ethnic groups with similar racial designations.

There was also a potential limitation in the cross-cultural validity of the CDRS measure of body image dissatisfaction, which instructed participants to select the figures that were most representative of their current and ideal body type. One participant, who identified herself as African American/Black, reported after the experiment that she experienced difficulty selecting a figure that was representative of her body. She stated that she did not feel that the proportions among the bust, waist, hips, and thighs in the figures matched her body. Furthermore, she stated that she did not feel that any of the figures were both "thin and curvaceous", which is how she described her body. Although she was the only participant to report this issue, it is possible that other participants felt this way but still chose to select a figure in order to be faithful subjects. Demand characteristics that contribute to participants' endorsement of items contrasting with their actual views should be identified and managed.

Future Directions

Further research on ruminative responses is necessary in order to determine if vulnerability to engaging in rumination and the likelihood of onset of rumination differ across social and psychopathological domains, or if ruminative responses are trait-like responses to life stressors in general. This study examined the influence of style of cognitive processing on body image dissatisfaction for individuals within the general population. Future research on processing mode of rumination should also be conducted with clinical populations such as individuals with

Eating Disorders. A future study should examine whether or not individuals in clinical settings can be taught to distinguish between abstract and concrete rumination and whether or not training individuals to engage in concrete rumination, as opposed to abstract rumination, leads to better therapeutic outcomes.

Since this study demonstrated the role of abstract and concrete rumination in body image dissatisfaction with female subjects, the logical next step would be to conduct a similar study involving male subjects. Although previous research has demonstrated sex differences in rumination (Nolen-Hoeksema, 1987), there have not been any studies that examined sex differences in tendency to engage in abstract or concrete rumination. Research has demonstrated that males tend to engage in distraction more than rumination (Nolen-Hoeksema et al., 1993). For the males who are more apt to engage in rumination than distraction, it is still unclear whether they are more likely to engage in abstract or concrete rumination.

Conclusion

Prior to this study and similar studies, there has been an overgeneralized conceptualization of rumination as maladaptive. This study provides support for a broader conceptualization of rumination and for consideration of level of construal, abstract or concrete, and associated outcomes. Although this study only incorporated female participants, it is recommended that future studies examine outcomes associated with various processing modes in males, which may provide evidence for level of construal as another explanation of sex differences in rumination and depression. Other methods of assessment and ways of conceptualizing the adaptiveness or maladaptiveness of rumination will contribute to greater

understanding of the construct and greater efforts to develop interventions that reduce maladaptive behaviors and promote adaptive functioning.

APPENDIX A

DEMOGRAPHICS QUESTIONNAIRE

1. Age:

2. Class in school:

□ Freshman
□ Sophomore
□ Junior
□ Senior
□ Other (please specify)

3. Race:

□ Caucasian – non-Hispanic
□ African American/Black
□ Asian/Asian American
□ Hispanic/Latino
□ American Indian
□ Native Hawaiian/Other Pacific Islander
□ Other/Multiracial (please specify)

4. Height (if you don't know it in feet and inches, please use the "other" field to type in your height AND indicate which units you are using):

□ 4'10"
□ 4'11"
□ 5'0"
□ 5'1"
□ 5'2"
□ 5'3"
□ 5'4"
□ 5'5"
□ 5'6"
□ 5'7"
□ 5'8"
□ 5'9"
□ 5'10"
□ 5'11"
□ 6'0"
□ 6'1"
□ 6'2"

□ 6’3”
□ Other (please specify)

5. Weight IN POUNDS (if you don’t know it in pounds, please indicate your weight AND the units you are using):

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