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Rumination and self-control interact to predict bulimic symptomatology in college students

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ABSTRACT

Recent studies suggest that a ruminative response style may contribute to the development and maintenance of Bulimia nervosa. However it is not clear what factors may contribute to the relationship between rumination and BN. One factor may be self-control, as studies suggest that BN symptomatology relates to deficits in self-control. In the present study, we hypothesized that the association between rumination and BN symptomatology would be the strongest among individuals with lower self-control relative to those with higher self-control. Participants were 353 students at a large university. Participants completed measures of self-control, rumination, and eating disorder symptomology as part of an online study. A hierarchical regression supported an interaction between rumination and self-control predicting bulimic symptomatology, controlling for BMI. Individuals with higher levels of rumination presented more bulimic symptoms if they also had lower levels of self-control, supporting our hypothesis. Based on these findings, assessing rumination in conjunction with self-control among individuals who present with eating concerns may help to direct treatment. Additionally, clinical interventions increasing self-control may also alleviate some BN symptoms in ruminators.

1. Introduction

Bulimia nervosa (BN) is characterized by a sense of lack of control while eating an unusually large amount of food. This is often followed by shame and secrecy about the quantity eaten, which is in turn followed by compensatory behaviors such as self-induced vomiting (APA, 2013; Fairburn & Cooper, 1984; Fairburn, Wilson, & Schleimer, 1993). It is estimated that between 1% and 4% of American college-age women meet a diagnosis of BN (APA, 2013). A far greater number of college students report sub-clinical bulimic symptoms throughout college (Hoek & Van Hoeken, 2003). As such, understanding the factor that contribute to the development and maintenance of bulimic symptoms among college students is critical.

Individuals who have difficulty in effectively regulating negative emotions are at risk for disordered eating. One type of maladaptive emotion regulation strategy that might be particularly relevant to disordered eating is rumination. Rumination is a response to distress through which an individual focuses on the causes, consequences, and symptoms of one's current negative affect repetitively without proactively engaging in goal directed behavior (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Research demonstrates that the tendency to ruminate (i.e., having a ruminative response style) is associated with the development and maintenance of negative outcomes such as depression, anxiety, and suicidal ideation (for a review see Smith and Alloy (2009). Most relevant to the present research are studies that have linked a ruminative response style and bulimic symptoms (Holm-Denoma & Hankin, 2010; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007), suggesting that a ruminative response style may play an etiological role in the development of BN. However, only a few studies have investigated factors that might contribute to the relationship between ruminative response styles and BN symptoms.

Research thus far has focused on the role of body-focused thoughts and body dissatisfaction in this relationship. Nolen-Hoeksema et al. (2007) proposed that a ruminative response style leads to an increase in bulimic symptoms and that binging and purging serve as an escape from repetitive body-focused thoughts for adolescent girls who are self-conscious about their bodies. As such, it may be that bulimic symptoms are a coping mechanism to escape from 'the self' (Heatherton & Baumeister, 1991; Nolen-Hoeksema et al., 2007) in girls who are overwhelmed with self-focused thoughts. Thus, binging and purging break the ruminative self-focused thought cycles that these girls are trapped in. Another study found that increased body dissatisfaction along with high levels of ruminations leads to bulimic symptoms, specifically, binging (Holm-Denoma & Hankin, 2010). Though these preliminary results are important, theory driven research focused on potential moderators of this association may help to further inform efforts to treat BN symptoms.

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One theory that may inform the relationship between rumination and BN is the Self-Regulatory Strength Model of Self-Control (Baumeister & Heatherton, 1996; Baumeister, Heatherton, & Tice, 1994). This theory purports that exerting self-control to change behaviors or emotions requires effort expenditure, yet, only a limited amount of resources are available. Thus, when self-regulatory resources have been exhausted, a state of depletion leads to failure on subsequent, unrelated tasks requiring self-control (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven, Tice, & Baumeister, 1998). Self-control is key to inhibit undesirable behavior. Recent research on a ruminative response style and anger demonstrates that an angry ruminative response style leads to persistently compromised effortful control, causing one to be at a greater risk for aggression (White & Turner, 2014). It may be that this same pattern is evident in individuals with bulimic symptoms, such that, a ruminative response is particularly dangerous among individuals who are easily depleted (i.e., having poor self-control). Rumination draws on self-control resources and that might lead someone to be less able to handle future demands (e.g., negative body related thoughts), eventually leading to a failure in resisting a binge. Thus, self-control is one factor that may moderate the relationship between ruminative response styles and BN.

Self-control is defined as the capacity of the self to alter one's dominant response and to regulate behavior, thought, and emotions (de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012). By definition, Bulimia nervosa includes a "sense of lack of control" over eating during binges (Mond, 2013) and low self-control is also associated with more frequent binges (Tangney, Baumeister, & Boone, 2004).

The resource allocation theory proposes that the negative thoughts of rumination deplete the already limited cognitive abilities that would otherwise be directed towards task-relevant processes, such as adaptive emotion regulation strategies (Gotlib & Joormann, 2010; Watkins & Brown, 2002). Therefore, it is likely that the valuable cognitive resources necessary to engage in adaptive emotion regulation strategies are allocated towards the ruminative thought processes, putting those with low levels of self-control at an increased risk to engage in bulimic behaviors. Building upon this research, the present study aimed to investigate the relationship between rumination and bulimic symptoms in a college sample. Based on the prior research on deficits in self-control and BN (Heilbrun & Bloomfield, 1986; Tangney et al., 2004; Tiggemann & Raven, 1998), we examined self-control as a moderator of the relationship between rumination and BN symptomatology. We hypothesized that the association between rumination and BN symptomatology would be the strongest among individuals with lower self-control relative to those with higher self-control.

2. Method

2.1. Participants

Participants were 353 college students (85% female). Participants' ages ranged from 18 to 60 years ($M = 21.93$, $SD = 5.78$). The sample was 55% Caucasian, 18% Asian, 11% African American, and the rest self-identified as "other."

2.2. Procedure

Data collection occurred within the context of a larger, ethics board approved online study. Participants were recruited for the study via an online advertisement and were given course credit in return for their participation. After an informed consent, participants completed measures of rumination (RRS), self-control (SCS), and eating disorder symptomology (EAT-26).

2.3. Materials

2.3.1. Rumination

The Ruminative Response Scale (RRS; Treynor, Gonzalez, & Nolen-Hoeksema, 2003) is a ten-item subscale of the larger Ruminative Styles Questionnaire (Nolen-Hoeksema & Morrow, 1991) that assess the extent to which individuals repeatedly focus on the self, on symptoms and causes and consequences of their negative mood. The scale measures two factors, reflection and brooding. Reflection focuses on the degree to which individuals engage in cognitive problem solving to alleviate their depressed mood (e.g., analyze recent events to try to understand why you are depressed) and brooding factor reflects an individual's judgmental self-focus contributions for their distress (e.g., think 'What am I doing to deserve this?'). In the current sample, the scale has acceptable internal consistency (alpha = 0.83).

2.3.2. Self-control

The Self-Control Scale (SCS; Tangney et al., 2004) is a trait measure of self-control. The scale contains 36 statements that assess the ability to control ones impulses and regulate behavior. Items are rated on a 5-point scale (1 = not at all like me, 5 = very much like me). The scale has been linked with behavioral measures of self-control (Schmeichel & Zell, 2007). In the current sample, the scale has acceptable internal consistency (alpha = 0.86).

2.3.3. Bulimia symptoms

The Eating Attitudes Test (EAT-26; (Garner, Olmsted, Bohr, & Garfinkel, 1982) was developed as, and is often used, as a screening measurement for identifying symptoms of eating disorders behaviors related to bulimia, weight, body image, and other psychological symptoms. The current study utilized the bulimia and food occupation subscale to assess the frequency of bulimic symptomatology. Sample items include, "I vomit after I have eaten" and "I find myself preoccupied with food." The EAT-26 has been shown to have good concurrent and criterion validity (Gross, Rosen, Leitenberg, & Willmuth, 1986; Rosen, Silberg, & Gross, 1988). The subscales, along with the total score, have demonstrated acceptable internal consistency estimates (Garner et al., 1982). In the current sample, the bulimia subscale has acceptable internal consistency (alpha = 0.79).

2.3.4. Body mass

Body mass index (BMI) was calculated using self-report height and weight. We calculated BMI by dividing weight in kilograms by height and meters' squared. For these analyses, we converted BMI values to age and sex specific percentiles based on norms from the National Health and Nutrition Examination Survey III (Kuczmarski et al., 2002).

3. Results

Table 1 displays correlations, means, and standard deviations for the study variables. Bulimic symptomatology was positively correlated with rumination and negatively correlated with self-control. There were no gender differences in any of the study variables (fs range from 0.16 to 3.11, ps rage from .08 to .69).

Table 1
Correlations, Means, and Standard Deviations for the Study Variables.

Variables	1	2	3	4	5
1. Sex	–	–	–	–	–
2. BMI	−0.11	–	–	–	–
3. Bulimic Symptoms	0.01	.08	–	–	–
4. Ruminative Response Style	0.11*	.09	.26***	–	–
5. Self- Control	0.06	−.12*	−.23***	−.37**	–
Mean	–	23.86	2.10	25.30	37.92
SD	–	4.66	2.44	6.21	10.07

Note. *p < .05, **p < .01, ***p < .001.