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**Emotion Regulation Abilities and Perceived Stress as  
Predictors of Negative Body Image and Problematic Eating Behaviors  
in Emerging Adults**

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**ABSTRACT**

*Body dissatisfaction and problematic eating behaviors are common among emerging adults in college, especially in the Westernized world, suggesting a need for a better understanding of predictors and potential buffers of such negative outcomes. Also, findings from the relative impact of emotion regulation abilities on body image and eating behaviors have been mixed. Thus, the present study investigated the interplay among negative body image cognitions (e.g., thoughts and feelings of dissatisfaction) and maladaptive eating/dieting behaviors, global stress, perceived social support, and two types of emotion regulation abilities (amplification and reduction) in a sample of 95 emerging adults (mean age 18.9-years). Results indicated that negative body image cognitions and maladaptive eating behaviors correlated significantly with perceived ability to regulate negative affect by reducing emotions, but not with emotion regulation amplification abilities. Also, perceived global stress correlated significantly with*

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*negative body image cognitions and problematic eating behaviors. In contrast, the relationship between body image variables and perceived social support was not significant. Finally, regression analyses indicated that emotion regulation reduction abilities predicted emerging adults' negative cognitions pertaining to their body/weight, but not their maladaptive eating behaviors, beyond perceived stress. Implications, limitations, and suggestions for future research will be discussed.*

**Key words: Body image; eating concerns; emotion regulation; stress; social support**

### INTRODUCTION

During emerging adulthood (18 to 25-years of age; Arnett, 2000), individuals explore and develop several aspects of their identity, including perceptions of their bodies and further incorporation of external messages regarding physical attractiveness (e.g., Gillen & Lefkowitz, 2009). In many cases, the journey to developing a healthy body image is a complex and sometimes problematic experience. For example, studies find that approximately 50 percent of emerging adult women in college have negative feelings about their body (Monteath & McCabe, 1997), with 25 to 40 percent endorsing moderate problems related to weight, negative body image, or problematic (out-of-control) eating (see Schwitzer et al., 2008, for a review). Recent longitudinal studies confirm these alarming rates of eating pathology. For example, Berg, Frazier and Sherr (2009) assessed eating disorder symptomatology in college-age women at two points in time (two months apart) and found that 49 percent (Time 1) and 40 percent (Time 2) engaged in problematic eating behavior at least weekly. Also, two-thirds of women in college endorse eating behaviors that may put them at risk for developing an eating disorder (Krahn, Kurth, Gomberg, & Drewnowski, 2005), suggesting that the problem is pervasive and in need of further research.

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In addition to predicting the risk of developing eating pathology (e.g., Cash & Deagle, 1997; Santos, Richards, & Bleckley, 2007), subjective attitudes and negative perceptions of one's body (Cash & Pruzinsky, 2002) can also be detrimental to an individual's academic performance (e.g., Yanover & Thompson, 2008) and is linked to psychological maladjustment, including depression (Stice & Bearman, 2001) and lower self-esteem (Johnson & Wardle, 2005; Powell & Hendricks, 1999). Given the widespread problem of body dissatisfaction and potentially dangerous eating behaviors, as well as the associated psycho-social maladjustment, researchers strive to illuminate individuals and groups that are at a particular risk for developing these problems, so that prevention and intervention efforts can be better targeted.

Some researchers argue that emerging adults in college are an especially vulnerable population in terms of problems with negative body image and eating (Abramson et al., 1998; Delinsky & Wilson, 2008), and the rate of body dissatisfaction is especially high in this group (Gillen & Lefkowitz, 2006). Specifically, having a negative body image, or a poor view of one's physical appearance (Altabe & Thompson, 1996), may be especially common in this group due to social pressures (e.g., Basow, Foran, & Bookwala, 2007), along with stressors associated with adjusting to college life (Compas, Wagner, Slavin, & Vannatta, 1986), which may increase the risk of body dissatisfaction and problematic eating behaviors (Stice, 2002). For example, a recent study found that 87 percent of college females who were normal weight (as measured by their Body Mass Index; BMI) actually desired to lose weight (Neighbors & Sobal, 2007). Also, body dissatisfaction has been linked to poor general psychological well-being for both male and female undergraduate students (Ganem, de Heer, & Morera, 2009), as well as

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negative affect and lower self-esteem (Olivardia, Pope, Borowiecki, & Cohane, 2004).

Overall, body dissatisfaction and disordered eating is more prevalent among college students relative to the general population (Ousley, Cordero, & White, 2008), thus more research is needed to illuminate risk and protective factors in this vulnerable group.

Although most research on the negative effects of body dissatisfaction has been conducted on women, recent studies suggest that males, too, struggle with insecurities about their bodies, particularly related to their weight and muscularity (e.g., Bergstrom & Neighbors, 2006; Cash, Morrow, & Hrabovsky, 2004; Leit, Gray, & Pope, 2002), which may have implications for wellbeing. For example, body dissatisfaction is related to male college students' negative affect and disordered eating behaviors (Cafri & Thompson, 2004), which parallels findings among females. Also, recent studies indicate that a majority of undergraduate males endorse dissatisfaction with their bodies and an astonishing 90 percent wish to be more muscular (Frederick et al., 2007).

Thus, one can conclude that the problem of body dissatisfaction and maladaptive eating behaviors (albeit manifested differently) no longer can be viewed as a “female” problem, but rather an issue that transcends gender, especially among college students. With increasing pressures from media and society in terms of “body ideals” (e.g., Dalley, Buunk, & Umit, 2009) as well as obesity rates at an all-time high (Ogden et al., 2006), emerging adults may be ill equipped as they face the challenge of developing a sense of self, which includes a healthy perception of their bodies. Thus, the present study addressed the call for studies that investigate predictors of negative body image and associated (and often problematic) behaviors among emerging adults in college.

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One variable that is associated consistently with eating disorder symptoms is perceived stress (Freeman & Gil, 2004; Sassaroli & Ruggerio, 2005). For example, studies have identified stress as a robust predictor of problematic eating behaviors among college students (Drewnowski, Yee, Kurth & Kahn, 1994; night eating; Pawlow, O'Neil, & Malcolm, 2003), as well as dieting symptomatology in women (Juda, Campbell, & Crawford, 2004). Moreover, stressful situations (such as taking an exam) may impact an individual's drive for thinness and their body dissatisfaction, in particular among students who evidence perfectionistic tendencies (Ruggiero, Levi, Ciuna, & Sassaroli, 2003). Also, stress is strongly and negatively correlated with self-esteem (Lundgren, 1978), which could, in turn, lead to a negative body image (Furnham et al., 2002). Moreover, stress and low self-esteem may contribute to maladaptive coping (i.e., avoidance), and low self-esteem and avoidant coping have been linked to unhealthy eating behavior in late adolescents (Martyn-Nemeth, Penckofer, Gulanick, Velsor-Friedrich, & Bryant, 2009). This inverse relationship between self-esteem and problematic eating behaviors has also been observed in a recent longitudinal study, which found that an increase in self-esteem corresponded with a decrease in bingeing and bulimic attitudes among female college students (Berg, Frazier, & Sherr, 2009). Similarly, Grossbard, Lee, Neighbors, and Larimer (2009) found that contingent self-esteem was related to weight and body shape concerns among male college students, while Bailey and Ricciardelli (2010) found that self-esteem contingent on appearance predicted unique variance in drive for thinness and bulimia symptoms among college age women.

Given that a majority of college students report high or very high levels of stress (60 percent; Makrides, Veinot, Richard, McKee, & Gallivan, 1998), and that this concept

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is linked to a variety of poor health outcomes and maladaptive behaviors related to eating; the relationships among stress, body dissatisfaction, and eating concerns needs further study. In addition, the high prevalence of body image disturbances among teens and emerging adults suggests that this is becoming a ‘normative’ adolescent experience in Westernized countries (e.g., Smolak, 2006; Swami, Airs, Chouhan, Amparo Padilla-Leon, & Towell, 2009), further arguing for the identification of protective factors that may influence positively body image and eating behaviors among emerging adults.

In lieu of the wide spread phenomenon of body image disturbance and dissatisfaction in emerging adults (Schwitzer et al., 2008), researchers have attempted to identify variables that can buffer or protect against the detrimental effects of a negative body image. For example, an emerging adult’s ability to regulate negative affect may contribute to their psychological well being, including their perception of self and their eating behaviors; however, this research is still in its infancy. Specifically, although the link between emotion dysregulation and eating disorders has garnered interest in recent years, research on perceived emotion regulation abilities and body image disturbance, dissatisfaction, and eating concerns is limited and has yielded mixed findings (e.g., Sim & Zeman, 2006). For example, Sim and Zeman (2006) found that negative affect predicts body dissatisfaction in early adolescent females, but in their sample, coping with negative emotion did not contribute to the overall model. The authors noted that participants may not show deficits in coping *knowledge*, but rather fail to use constructive coping due to lack of information about their emotions.

Also, studies commonly find that women use “avoidance” or “appearance fixing coping” in response to body image-related threats (e.g., Cash, Santos, & Fleming

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Williams, 2005; Choma, Shove, Busseri, Sadava & Hosker, 2009), and that benefits of such coping efforts are short-lived and likely not as effective as more acceptance based coping (Choma et al., 2009). Additionally, in a recent study, bulimia symptoms (primarily bingeing) were related to experiential avoidance, and also to the use of eating specifically to feel relief from negative emotions (Hayaki, 2009), which may be viewed as lending support to the role of poor emotion regulation abilities in individuals who struggle with eating disorder symptomatology (Hayaki, 2009). Another recent study found that “difficulties regulating emotions accounted for unique variance in binge eating, beyond food restriction, [sex], and over-evaluation of weight and shape” (Whiteside et al., 2007, p. 166), which the authors attributed primarily to difficulty identifying emotional states and limited access to emotion regulation strategies.

Overall, research has implicated emotion regulation deficits, especially the ability to diffuse negative moods, in the models of problematic eating behaviors. Thus, the present study will attempt to address emotion regulation by assessing specific abilities (amplification and reduction, respectively) and participants’ perceived aptitude in using these methods as needed.

Also, one variable that has shown promise in predicting psychological wellbeing is social support, which has been correlated consistently and positively with body image and satisfaction (e.g., peer support; Stice & Whitenton, 2002). In other words, more adequate social support, whether real or perceived, is linked to a healthier body image. Similarly, a recent study found that social connectedness was negatively correlated with conformity, body image concerns, dietary restraint, and bulimic symptoms among female college students (Vartanian & Hopkinson, 2010). In contrast, one study found that

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women who perceived more support from their family and romantic partners reported lower levels of dieting symptomatology, but support from friends was not related significantly to outcomes (Juda et al., 2004). Some of the conflicting results regarding impact of social support on body satisfaction and eating behaviors may be attributed to the conceptualization of support. It may be that support is perceived as adequate, even if it consists of friends who encourage dieting, purging, or even starvation. Some studies suggest that such “negative influences” may have an adverse effect on a person’s body image, (adolescent females; Paxton, 1996), but other types of support (i.e., less weight focused) may provide a buffer (see Ata, Bryant Ludden, & Lally, 2007 for a review). Overall, however, an individual’s social relationships and perceived support may influence body image and eating behaviors among emerging adults, but the type of support might contribute to the significance and directionality of those outcomes.

In summary, conflicting findings and variations in conceptualization of key constructs suggest that the role of stress, support, and emotion regulation in predicting body image concerns (i.e., body dissatisfaction) and problematic eating behaviors warrant further study, especially among emerging adults.

### **Present Study**

Given the continuing problem of body image disturbance and problematic eating in emerging adults (e.g., Ousley et al., 2008), and the limited understanding of emotion regulation in non-clinical populations, the purpose of the present study was to explore relationships among emerging adults’ body image (e.g., cognitive and behavioral concerns pertaining to weight and eating), their perceived social support, global stress, and ability to regulate their emotions by reducing negative affect and increasing positive

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emotions, respectively. By doing so, this study sought to investigate the relative impact of predictors on cognitions and behaviors associated with having poor body image.

Specifically, the present study hypothesized that 1) stress, emotion regulation abilities, and social support would correlate significantly with the outcomes of negative body image (cognitions/dissatisfaction) and problematic eating behaviors, respectively. 2) In addition, emotion regulation by reduction of negative emotions (ER-Reduction) was expected to remain a significant predictor of outcomes even after accounting for college students' perceived stress. 3) Similarly, perceived social support was hypothesized to add significant variance to the overall predictive model of negative body image cognitions and behaviors, respectively.

Findings may increase our understanding of protective factors among male and female emerging adults in college and aid in the refinement of interventions for the steadily growing problem of body dissatisfaction and disordered eating in this population.

## METHOD

### Participants

Participants ( $N=95$ ) were recruited from undergraduate courses at a regional university in the Southeastern United States and were provided with course credit (to satisfy a research participation requirement for an introduction to psychology course) or they were given "extra credit points" for their participation as approved by their instructor. Participation was completely voluntary and students were informed that they could discontinue their participation at any time without penalty. After reading and signing the informed consent form, participants completed a demographics form (age, sex, year in school, ethnic and racial background), and the packet of study questionnaires.

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In this sample, 66 students (69.5 percent) were female and 29 (30.5 percent) were male. Participants ranged in age from 18 to 26-years, with a mean age of 18.9-years ( $SD = 1.45$ ). The sample population was overwhelmingly Caucasian (88.4 percent) and most participants (74 percent) were in their freshman year of study.

### Measures

**Body Image/Eating Concerns.** The Eating Concerns subscale of the *Counseling Center Assessment of Psychological Symptoms-62* (CCAPS-62; Penn State University, 2009) was used to assess aspects of body dissatisfaction and problematic behaviors associated with eating and dieting, such as “I feel out of control when I eat”. The CCAPS measure utilizes a five-point Likert-type scale with responses ranging from 0 (not at all like me) to 4 (extremely like me). Based on factor analysis, the Eating Concerns subscale of the CCAPS-62 was divided further into a scale of cognitive concerns (body image disturbance) and behavioral concerns (disordered eating, dieting), allowing for more refined examination of the types of problems exhibited in this sample.

**Perceived Stress.** The 14-item *Perceived Stress Scale* (PSS; Cohen, Kamarack, & Mermelstein, 1983) was used to assess an individual’s perception of global (rather than specific) experience of stress in the past month. For example, the PSS scale assesses the level of life stress, daily hassles, and the extent to which respondents have been successful in dealing with stressors in the last month. For example, items such as; “In the last month, how often have you felt nervous and “stressed”?” and “In the last month, how often have you dealt successfully with irritating life hassles?” (*reversed*) are answered on a 5-point Likert-type scale where never = 0, almost never = 1, sometimes = 2, fairly often = 3, and very often = 4. Some items are reversed scored so that a higher total score

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indicates higher perceived stress. Internal consistency for the PSS is good, ranging from .84 to .86 in previous studies.

**Social Support.** The 12-item *Multidimensional Scale of Perceived Social Support* (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) was used to assess the quality and adequacy of participants' perceived support from friends, family, and significant others, respectively. Items such as "I get the emotional support I need from my family" are rated on a 7-point Likert-type scale from "Very strongly disagree" to "Very strongly agree". A total score is also calculated and was used as an overall measure of support quality in the present study. The MSPSS has shown adequate reliability and validity in previous studies.

**Emotion Regulation Abilities.** Finally, participants also completed The Emotion Amplification and Reduction Scales as a measure of two different *emotion regulation* strategies (TEARS; Hamilton et al., 2009). Specifically, the 18-item TEARS measures the extent to which participants feel they are capable of amplifying or reducing their emotions, without placing specific focus on the actual use of strategies. Two separate subscales (reduction and amplification) are generated to illuminate the different aspects of emotion regulation. For example, the Emotion Amplification subscale (9 items) assesses an individual's "perceived ability to amplify an emotionally response by either prolonging or intensifying an existing emotion" (Hamilton et al., 2009, p. 255). In contrast, the Emotion Reduction subscale (9 items) involves the extent to which an individual is able to modify an emotion (usually a negative affective experience) by softening, stopping, or shortening the emotion. Participants rate each item on a 4-point Likert-type scale ranging from 1 = *Not at all true for me* to 4 = *Very true for me*.

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Hamilton and colleagues (2009) report adequate psychometric properties for the TEARS, and support the use of this measure with college student populations.

### RESULTS

Results of a correlation matrix (Table 1) indicated that negative body image *cognitions* (e.g., dissatisfaction with body shape or weight) and *behaviors* (e.g., purging to stay thin, frequent dieting), correlated significantly with emotion regulation *reduction* ( $r = -.24$  and  $-.21$  respectively). Specifically, more problematic cognitions and behaviors pertaining to college students' body image were related to less effective use of emotion reduction (ER-red) as a way of coping. In contrast, body image variables did not correlate significantly with the perceived ability to *amplify* emotions (ER-amp). Also, *perceived stress* (PSS) correlated significantly with negative body image *cognitions* and problematic eating *behaviors* ( $r = .22$  and  $.46$  respectively) at the .01 and .05 alpha levels. Specifically, higher perceived stress was linked to a more negative body image and more frequent endorsements of frequent dieting, purging, and other problematic behaviors. In contrast, the relationship between body image variables (cognitions and behaviors, respectively) and *perceived social support* (MSPSS) was not significant.

**Table 1**

*Correlations Among Study Variables*

Variables	1.	2.	3.	4.	5.	6.
1. Body Image Cognitions	--					
2. Maladaptive Eating Behavior	.59**	--				
3. ER by Amplification	.05	-.17	--			
4. ER by Reduction	-.24*	-.21*	.58**	--		
5. MSPSS: Social Support	.03	-.09	.20	.11	--	

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6. PSS: Perceived Stress	.22*	.46**	-.10	-.19	-.27**	--
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\*\*Significant at <.01 \*Significant at <.05

Next, a series of regression equations (Table 2 and 3) were performed to examine stress and *emotion regulation reduction abilities* as predictors of problematic body image cognitions (e.g., body dissatisfaction) and behaviors (e.g., dieting, purging), respectively. Stress was entered in the first step, followed by emotion regulation by reduction in step two. For the regression equation examining body image cognition scores (i.e., thoughts pertaining to body dissatisfaction, weight concerns), stress was a significant predictor as indicated by  $F(1, 93) = 4.83, p < .05$ . In step two, emotion regulation reduction predicted body image cognitions as indicated by  $F(1, 92) = 4.46, p < .05$ . The overall model was significant as indicated by  $F(2, 92) = 4.46, p < .05$ , but further examination of the predictors indicated that only emotion regulation by reduction contributed to the model. Next, stress (step 1) and emotion regulation by reduction (step 2) were entered into a regression equation to examine problematic eating *behaviors*. In the first step, stress predicted body image cognitions as indicated by  $F(1, 93) = 25.09, p < .001$ . However, emotion regulation by reduction in step two did not add a significant amount of variance to the model, with  $F(1, 92) = 1.84, p < .18$ . The overall model remained significant, with  $F(2, 92) = 13.58, p < .001$ .

Overall, stress and perceived emotion regulation abilities (reduction) correlated significantly with both negative body image cognitions and problematic eating behaviors. However, this type of emotion regulation abilities predicted only body image *cognitions* (e.g., dissatisfaction with body shape or weight), but not behaviors, beyond perceived stress.

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**Table 2**

*Regression analyses for Negative Body Image Cognitions*

Variable/Step of Analysis	Beta	t	p
Step 1 ( $r^2 = .05$ )*			
Perceived Stress	.22	2.20	.030*
Step 2 ( $r^2 = .09$ )*			
Perceived Stress	.18	1.82	.073
ER by Reduction	-.20	-1.98	.050*

\* Step is significant at  $p < .05$

\*\* Step is significant at  $p < .01$

**Table 3**

*Regression analyses for Maladaptive Eating Behaviors*

Variable/Step of Analysis	Beta	t	p
Step 1 ( $r^2 = .21$ )**			
Perceived Stress	.46	5.01	.000**
Step 2 ( $r^2 = .23$ )*			
Perceived Stress	.44	4.68	.000**
ER by Reduction	-.13	-1.36	.178

\* Step is significant at  $p < .05$

\*\* Step is significant at  $p < .01$

## DISCUSSION

The late teen age years through the early twenties (emerging adulthood; Arnett, 2000) is a stressful but important time in a person's life, especially in terms of developing a healthy self-identity and adjusting to increasing demands. Findings of the present study confirmed stress as a robust predictor of college students' body dissatisfaction and behaviors associated with having a poor body image. Also, findings suggested that perceived abilities pertaining to *reduction* of negative emotions in response to stress, but not emotion regulation by *amplifying* or increasing emotions, is related to negative cognitions (e.g., body dissatisfaction) and maladaptive eating behaviors, respectively.

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This finding partially supported the hypothesis regarding emotion regulation as a predictor of negative body image and behaviors, respectively. Conceptually, this finding may not be surprising given that an inability to effectively reduce negative affect (i.e., emotion regulation by reduction), such as negative feelings associated with ones' body shape or weight, makes more intuitive sense for wellbeing relative to the ability to enhance positive moods associated with ones' body. Moreover, perceived ability to use emotion regulation reduction strategies predicted body image cognitions above and beyond perceived stress. These findings suggest that being able to reduce one's emotions effectively may also help in reducing negative perceptions of ones' body.

In contrast to previous research (social connectedness; Vartanian & Hopkinson, 2010), our study did not find a significant relationship between social support and body image variables, thus failing to support our third hypothesis. Similar to previous studies, however, higher social support was related to lower perceived stress. It may be that a ceiling effect on the social support measure (i.e., a restricted the range of scores) impacted the probability of finding a significant relationship between this measure and body image/eating concerns. It may also be that other indicators of support that were not assessed in this study (i.e., connectedness) are more robustly related to body satisfaction and behaviors.

Findings of this study must be viewed in light of some important limitations. First, the present study used self-report measures, some of which asked participants to provide sensitive information. This could have contributed to participants being less honest in their responding. Also, bivariate correlations and regression analyses do not allow us to draw conclusions about causality, but merely illuminate potential

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relationships among variables. An experimental design and a larger sample size would enhance the implications of the findings and allow for more robust statistical analyses (e.g., Structural Equation Modeling). In addition, an overwhelming majority of participants in this study were of Caucasian origin, which could limit the generalizability of findings to more diverse samples. Thus, it may be beneficial to include a greater percentage of minorities, who may report different perceptions of themselves relative to non-Hispanic white individuals (e.g., Wildes, Emery, & Simons, 2001). Similarly, a recent meta analysis suggested that ethnic differences in females' body image can still be found, especially in college student populations, but that the relationship between ethno-cultural factors and this aspect of one's identity may be more complex than previously thought (Roberts, Cash, Feingold, & Johnson, 2006). It should be noted, however, that Gordon, Castro, Sitnikov, and Holm-Denoma (2010) found "comparable levels of self-reported body dissatisfaction and drive for thinness" (p. 141) among White and Latina college women, while other studies suggest body image differences between minority populations and their Caucasian counterparts may be disappearing (e.g., Shaw, Ramirez, Trost, Randall, & Stice, 2004). For example, high rates of eating pathology can be found even among minority samples (e.g., college freshmen in Puerto Rico; Reyes-Rodriguez et al., 2010), but further research is needed. Nonetheless, inclusion of participants from more diverse ethno-cultural backgrounds would strengthen findings of this research.

Also, we note that the majority of the present sample was female, which did not allow for statistical sex comparisons. As a result, it is unknown whether emotion regulation has the same impact on body image variables for males and females. Future research should attempt to recruit an equal number of males and females so that sex

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comparisons can be made, especially given the possibility that males and females construct body satisfaction differently (e.g., Sira & Parker White, 2010).

Finally, controlling for participants Body Mass Index (McCabe & Ricciardelli, 2003) and assessing changes in participants' cognitions and behaviors over time (longitudinal design), may strengthen inferences drawn from this study. In lieu of these limitations, however, the present study adds to the existing literature by illuminating several specific relationships pertaining to body image cognitions and behaviors, respectively, as well as identifying emotion regulation reduction abilities as a promising predictor of emerging adults' body image. Given the high stress that emerging adults experience in college, and their demonstrated propensity for using maladaptive coping (restricted eating, dieting, purging) in response to negative affect, interventions and education programs may want to integrate emotion regulation strategies into their curriculum.

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