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Associations Among Self-Compassion, Mindful Eating, Eating Disorder Symptomatology, and Body Mass Index in College Students

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This study investigated the relationships among self-compassion, mindful eating, eating disorder symptomatology, and body mass index. Participants ($N = 150$) were college students. Average body mass index was 23.02 [(weight in pounds/height in inches^2) $\times$ 703]; average age was 19.23 years. Participants completed measures of self-compassion, mindful eating, and disordered eating and provided self-reported height and weight. Higher self-compassion predicted lower body mass index and eating disorder symptomatology. In addition, higher self-compassion predicted higher mindful eating and explained a notable 11% of variance in mindful eating. These findings have implications for the development and testing of self-compassion mindful-eating (SC-ME) training programs on college campuses that are oriented toward improving body image, reducing eating disorder symptomatology, decreasing mindless eating, and preventing weight gain.

Keywords: self-compassion, mindful eating, disordered eating, body mass index, college students

Self-compassion and mindful eating have recently gained attention in the study of weight management. Research supports numerous benefits of trait self-compassion (an innate propensity to be self-compassionate); self-compassion induction (presentation of material designed to elicit a self-compassionate attitude); and self-compassion training on body image, eating-related cognitive and affective processes, and eating behaviors (Adams & Leary, 2007; Ferreira, Pinto-Gouveia, & Duarte, 2011; Schoenefeld & Webb, 2013; Wasylkiw, MacKinnon, & MacLellan, 2012; Webb & Forman, 2013). Furthermore, clinical psychologists have begun successfully integrating self-compassion and mindful eating into treatment programs for eating disorders (Gale, Gilbert, Read, & Goss, 2014; Kristeller, Wolever, & Sheets, 2014).

Self-Compassion and Mindful Eating Definitions

Self-compassion is operationally defined in this research study as being open to one's personal failures, inadequacies, and suffering and responding to them with common humanity, mindfulness, and self-kindness (Neff, 2003a). Common humanity involves viewing personally difficult experiences as common human experiences. Mindful eating is operationally defined as food consumption that is driven by appropriate cues for eating. It involves high levels of

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eating inhibition, awareness of personal eating behavior, and awareness of external cues to eat as well as low emotional responses to eating and engagement in distractive activities while eating (Framson et al., 2009).

Self-Compassion and Eating-Related Variables

Higher self-compassion is related to a greater body acceptance and appreciation and lower levels of body preoccupation, food- and body-related concerns, and body dissatisfaction in nonclinical college student and community samples and clinical samples (Ferreira, Pinto-Gouveia, & Duarte, 2011, 2013; Kelly, Vimalakanthan, & Carter, 2014; Schoenefeld & Webb, 2013; Wasylkiw et al., 2012; Webb & Forman, 2013). Lower self-compassion is associated with a higher drive for thinness, dietary restraint, guilt associated with eating foods perceived as unhealthy, bulimic symptomatology, and binge eating (Ferreira et al., 2013; Kelly et al., 2014; Webb & Forman, 2013).

Ferreira and colleagues (2013) recently established that lower self-compassion partially mediates the significant relationship between external shame and drive for thinness among a female nonclinical community sample. Conversely, a more self-compassionate attitude attenuated the positive association between shame and motivation to reduce one's body size. Webb and Forman (2013) further demonstrated that both higher unconditional self-acceptance and emotional tolerance fully mediate the inverse relationship between self-compassion and binge eating severity in a primarily female nonclinical college student sample. This suggests that greater unconditional self-acceptance and emotional distress tolerance explained the relationship between higher self-compassion and lower binge eating symptomatology.

Adams and Leary (2007) found that eliciting a self-compassionate attitude (by providing self-compassionate verbal information) among highly restrictive eaters (those reporting strong desires and efforts to avoid eating perceived unhealthy foods) after they consumed a donut weakened self-reported negative affect and inhibited overeating on a subsequent candy taste test among a nonclinical female college student sample. Hearing a self-compassion induction may have buffered against distress-related eating via reduction in eating- and body-related negative self-judgments in response to donut consumption. Using a self-compassion induction or self-compassion training with restrictive eaters may reduce distress-related eating and promote appropriate and adaptive eating behaviors.

Self-Compassion, Intuitive and Mindful Eating, and Other Eating-Related Variables

No studies have explored the relationship between self-compassion and mindful eating. However, previous research shows that self-compassion is positively related to intuitive eating ($r = .39$; Schoenefeld & Webb, 2013). Mindful eating is best viewed as an expansive construct, which includes most components of intuitive eating. Given the conceptual overlap, it can be hypothesized that self-compassion and mindful eating may feature a similar statistical relationship to self-compassion and intuitive eating and that mindful and intuitive eating may be similarly related to eating-related variables (Framson et al., 2009; Tylka, 2006). Intuitive eating is inversely related to eating disorder symptomatology, which suggests that mindful eating may be as well (Tylka, 2006; Tylka & Kroon Van Diest, 2013).

Mindless eating may partially explain why certain internal and external variables can culminate in overconsumption of nutrient-poor, calorie-dense foods and disordered eating, which can result in mental health issues and weight gain over the long term. Eating in response to inappropriate cues (e.g., intense emotional states, the mere presence of food) and disinhibited eating can both lead to excess intake of energy-dense food and internal distress that may increase the likelihood of subsequent dysregulated eating behaviors. Likewise, mental distraction and insufficient attention to the sensory experience of eating can reduce awareness of the sensory pleasure of eating, external eating cues to consume calorie-dense foods or overeat, and satiety signals, which may lead to problematic eating behavior.

How Self-Compassion May Be Theoretically Related to Mindful Eating and Other Eating-Related Variables

The mindfulness component of self-compassion features flexible awareness, nonjudgment, and acceptance of experiences, which may extend to experiences of difficult eating-related thoughts and feelings and problematic eating (Raes, Pommier, Neff, & Van Gucht, 2011). This stance may protect against labeling these experiences as negative and being distressed by them and may promote adaptive responses over the long term. This may manifest in lower mindless eating, disordered eating behaviors, or overeating.

The common humanity component of the construct of self-compassion involves viewing personally difficult experiences as common human experiences, which may include viewing difficult eating-related thoughts and feelings and perceived problematic eating behavior as normal parts of the human condition. This social normalization may help individuals feel less alone during these experiences and less likely to evaluate these experiences and themselves as abnormal and defective. This may help them be more likely to engage in more adaptive behaviors, especially seeking social support to help them with these difficult experiences, and engage in less mindless eating, disordered eating behaviors, or overeating.

The self-kindness component of the construct of self-compassion extends an attitude of nonjudgment, understanding, caring, and patience toward oneself during difficult experiences, which may translate to being more tender and loving toward oneself in the face of difficult eating-related thoughts and feelings and perceived problematic eating behavior (Raes et al., 2011). This approach may impede the development of a vicious cycle of global negative self-judgments, self-blame for perceived problematic eating, augmented internal distress, and more subjective problematic eating. This may in turn manifest in less mindless eating behavior, disordered eating behaviors, or overeating and may also promote higher general engagement in self-nourishing, enjoyed, health-promotional activities, such as mindful eating, consumption of nutrient-dense foods, and exercise, which may promote a healthy weight (Terry & Leary, 2011).

Study Aim

Despite research connecting greater self-compassion to improved body image and lower eating disorder symptomatology, no research studies to date have found a significant relationship between self-compassion and body mass index (BMI; Schoenefeld & Webb, 2013; Webb & Forman, 2013). Furthermore, few studies have shown that greater mindful eating and intuitive eating have small inverse correlations with BMI among college students (Moor, Scott, & McIntosh, 2013; Schoenefeld & Webb, 2013; Tylka, 2006; Tylka & Kroon Van Diest, 2013). Thus, this study sought to replicate and expand the literature by investigating the relationships among self-compassion, mindful eating, BMI, and eating disorder symptomatology.

Hypotheses

On the basis of past research, we hypothesized that self-compassion would be positively associated with mindful eating and negatively associated with eating disorder symptomatology and BMI. We also hypothesized that mindful eating would be negatively associated with eating disorder symptomatology and BMI and that mindful eating would moderate the relationship between self-compassion and eating disorder symptomatology as well as the relationship between self-compassion and BMI.

Method

Participants

Participants were 150 undergraduate college students between 18 and 25 years of age (M = 19.23, SD = 1.50). Eighty-five percent of the participants were females and 55% were freshman. The average BMI in the sample was 23.02 (SD = 3.69). Twenty-six percent of the sample was overweight or obese. Seventy-four percent of the participants were non-Hispanic White, 12% were Hispanic American, and the remaining participants identified with another racial or ethnic category. Traditional college students were used for the current study, which were defined as undergraduate college students between 18 and 25 years of age that had never married and that currently lived in a nonfamilial living environment.

Procedure

The university institutional review board approved the study. Participants were recruited from the undergraduate introductory psychology research pool at a medium-sized, public university in the southwest. The study was administered online. Participants signed digital informed consent. Eligibility was assessed online; participants were ineligible if they were not traditional college students as previously operationally defined. Subsequently, participants completed five of the six primary study measures, which included the Self-Compassion Scale–Short Form (SCS-SF) and Mindful Eating Questionnaire (MEQ). Three of these measures were part of a larger study and will not be addressed in the current research article. The unaddressed measures examined the personality orientations of sociotropy and autonomy (Personal Style Inventory–Revised), attachment insecurity in romantic relationships (the Revised Experiences in Close Relationships [ECR-R]), and attachment insecurity in friendships (a researcher-modification of the ECR-R; Fraley, Waller, & Brennan, 2000; Sibley & Liu, 2004; Robins et al., 1994). A 5 × 5 Latin-Square design was used to counterbalance these five measures (Rosenthal & Rosnow, 1991). After completion of the primary measures, participants were asked to complete the Eating Attitudes Test-26 (EAT-26). This measure was administered last to prevent potential priming of eating- and weight-related cognitions and emotions that could influence participants' responses on the other measures. Lastly, participants completed a survey on demographic and general information variables. Students received research participation credit for their involvement in the study.

Measures

SCS-SF. The 12-item SCS-SF (Raes et al., 2011) was used to measure self-compassion. The measure comprises self-compassion items that assess self-kindness, common humanity, and mindfulness and reverse-scored self-critical judgment items that assess self-judgment, isolation, and overidentification. This measure uses a response scale ranging from 1 (*almost never*) to 5 (*almost always*). Examples of items are "When I'm going through a very hard time, I give myself the caring and tenderness I need," "I try to see my failings as part of the human condition," and "I'm disapproving and judgmental about my own flaws and inadequacies (reverse scored)." The internal reliability of the SCS-SF was high ($\alpha = .84$) in this study.

MEQ. The MEQ Framson et al., 2009 features 28 items that assess the mindful eating factors of disinhibition, awareness, external cues, emotional response, and distraction. This measure uses a response scale ranging from 1 (*never/rarely*) to 4 (*usually/always*). Examples of items are "I notice when the food I eat affects my emotional state" and "I recognize when I'm eating and not hungry." Two questions were reworded in the current study to be more applicable to college students with or without a job and college students who do or do not live in a house. The two reworded items were "When I'm feeling stressed at school or work I'll go find something to eat" and "I have trouble not eating ice cream, cookies, or chips if they're around." The internal reliability of the MEQ was high ($\alpha = .84$) in this study.

EAT-26. The EAT-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982) features 26 items that measure disordered eating attitudes and behaviors. This measure assesses dieting, bulimia, food preoccupation, and oral control using three subscales. Most items are measured using a response scale that ranges from *never* to *always*. Examples of items are "I am terrified about being overweight," "I have gone on eating binges where I feel I am not able to stop," and "I display self-control around food." The internal reliability of the EAT-26 was good ($\alpha = .87$) in this study.

BMI. BMI was calculated from participants' self-reported height and weight on the EAT-26. Weight was reported in pounds and height was reported in inches. BMI was calculated using the formula $\text{BMI} = \frac{(\textit{weight in pounds})}{(\textit{height in inches})^2} \times 703.$

Data Analysis

Analyses were conducted using product-moment Pearson correlation analyses and a series of linear regressions within IBM SPSS Statistics version 21.

Results

Preliminary Data Analyses

Of the 159 eligible participants, 150 were included in the final analyses after removal of

outliers with z scores above 3.29 or less than –3.29. Preliminary data analyses demonstrated that these data were suitable for regression analysis given that all variables were normally and linearly distributed after removal of outliers (Tabachnick & Fidell, 2009). Mean scores, standard deviations, and ranges for the measures did not deviate from previously documented values in college student and young adult samples (Table 1; Framson et al., 2009; Raes et al., 2011).

Correlations

Self-compassion was positively correlated with mindful eating and negatively correlated with both total eating disorder symptomatology and BMI. Furthermore, self-compassion was negatively correlated with the eating disorder symptomatology subscale of dieting and was not correlated with the other two eating disorder symptomatology subscales. BMI was positively correlated with total eating disorder symptomatology. More specifically, BMI was positively correlated with the eating disorder symptomatology subscale of dieting and was not correlated with the other eating disorder symptomatology subscales. There was no significant correlation between mindful eating and total eating disorder symptomatology or between mindful eating and BMI. Refer to Table 2 for specific correlation values.

Simple Regressions

Self-compassion positively predicted mindful eating ($p < .001$) such that that higher scores on the self-compassion scale predicted higher scores on the mindful eating scale. Self-compassion explained 11% of the adjusted variance in mindful eating, $R^2_{adj} = .11$, $F(1, 148) = 18.81$, $p < .001$. Self-compassion negatively predicted BMI ($p < .01$). It explained 4% of the adjusted variance in BMI, $R^2_{adj} = .04$, $F(1, 148) = 7.48$, $p < .01$. Self-compassion negatively predicted eating disorder symptomatology ($p < .05$). It explained 2% of the adjusted variance in eating disorder symptomatology, $R^2_{adj} = .02$, $F(1, 148) = 4.25$, $p < .05$. Self-compassion negatively predicted eating disorder symptomatology dieting subscale scores ($p < .01$). It explained 5% of the adjusted variance in dieting-related eating disorder symptomatology, $R^2 = .05$, $F(1, 148) = 8.07$, $p < .01$.

Moderations

To test whether the relationship between self-compassion and eating disorder symptomatology and BMI depended on levels of mindful eating, researchers conducted two moderator analyses predicting BMI and total eating disorder symptomatology scores. Hierarchical linear regressions included mindful eating and self-compassion scores in block 1 and a mindful eating by self-compassion interaction in block 2. In the first moderator analysis, in block 1 mindful eating and self-compassion significantly predicted BMI, $F(2, 147) = 3.83$, $p = .02$, and explained approximately 5% of the variance in BMI. However, adding the mindful eating by self-compassion interaction term did not lead to a significant increase in variance explained ($\Delta R^2 = .00$, $F_{inc}(1, 146) = .025$, $p = .87$). Thus, the degree to which self-compassion was able to predict BMI did not depend on levels of mindful eating.

Table 1
Means and Standard Deviations of Study Variables

Variable	Current sample means	Sample *SD*	Theoretical score range	Range in sample	Mean norms
MEQ	2.86	0.38	1.00–4.00	1.29–3.73	2.79
SCS-SF	3.12	0.64	1.00–5.00	1.33–5.00	3.00
EAT-26	9.65	8.69	0.00–78.00	0.00–52.00	—
BMI	23.02	3.69	—	17.10–48.70	—

Note. MEQ = Mindful Eating Questionnaire; SCS-SF = Self-Compassion Scale Short Form; EAT-26 = Eating Attitudes Test 26; BMI = body mass index. Norms for the MEQ originated from a study conducted by Framson et al. (2009). Norms for the SCS-SF originated from a study conducted by Raes et al. (2011). The reported ranges for the EAT-26 and BMI are the ranges that were present in the sample before removal of outliers. The reported means and standard deviations for these variables were those that were present in the sample after removal of outliers.

Table 2
Correlations (Two-Tailed Pearson r) Among MEQ, SCS-SF, EAT-26, EAT-26 Subscales, and BMI

	1	2	3	4	5	6	7
1. MEQ							
2. SCS−SF	.34**						
3. EAT-26	−.08	−.17*					
4. EAT-26 DIET	−.11	−.23**	.95**				
5. EAT-26 BUL/FP	−.28**	−.11	.65**	.53**			
6. EAT-26 OC	.33**	.09	.59**	.46**	.19*		
7. BMI	−.11	−.22**	.23**	.26**	.15	−.03	

Note. $N = 150$. MEQ = Mindful Eating Questionnaire; SCS-SF = Self-Compassion Scale-Short Form; EAT-26 = Eating Attitudes Test-26; EAT-26 DIET = Eating Attitudes Test-26 dieting subscale; EAT-26 BUL/FP = Eating Attitudes Test-26 bulimia and food preoccupation subscale; EAT-26 OC = Eating Attitudes Test-26 oral control subscale; BMI = body mass index.
* $p < .05$. ** $p < .01$.

In the second moderator analysis, the same independent variables were used to predict eating disorder symptomatology. Mindful eating and self-compassion did not significantly predict eating disorder symptomatology in block 1, $F(2, 147) = 2.15$, $p = .12$, and the interaction term (block 2) for these variables also did not significantly predict this variable ($\Delta R^2 = .03$, $F_{inc}(1, 146) = .80$, $p = .37$).

Discussion

This study found that self-compassion negatively predicted eating disorder symptomatology and dieting-related eating disorder symptomatology specifically, which aligns with the current researchers' hypothesis and previous research findings. A healthy level of self-compassion may prevent individuals from engaging in disordered eating despite the presence of disordered eating thoughts and emotional responses or may reduce the occurrence of these thoughts and feelings. It may be that self-compassionate individuals are more aware of eating disordered thoughts and feelings; approach them with a patient, nonjudgmental attitude; and remind themselves that they are not alone in their suffering. This approach may promote individuals' engagement in adaptive coping techniques in response to distressing thoughts and emotions (including disordered eating thoughts and emotional responses), such as engaging in quality social interactions, engaging in various health behaviors, involvement in valued hobbies, and use of stress management strategies.

Self-compassion negatively predicted dieting-related eating disorder symptomatology. The EAT-26 dieting subscale items measure fear of being full and gaining weight, preoccupation with thinness, awareness of the caloric content of food, avoidance of high-carbohydrate and high-sugar foods, consumption of diet foods, and posteating guilt and discomfort. Perhaps self-compassionate individuals' kind, tolerant stance toward themselves is incompatible with excessive food monitoring, food deprivation behavior, and a drive to modify superficial physical aspects of the self. Their self-love may preclude excessive self-deprivation and the pursuit of thinness. A self-compassionate attitude promotes self-trust and self-care, which is in contrast to generation of rigid rules for the self, excessive self-monitoring, and inflexible self-control. Self-compassion likely promotes dietary flexibility rather than rigid dieting behavior. Self-compassion may help individuals respond to perceived negative eating events with nonjudgment, kindness, and future health behavior goal-setting rather than rigid thinking and subsequent self-deprivation motivated dieting.

Expanding upon this finding, dieting-related eating disorder symptomatology was also positively associated with BMI in this study. This association may be due to eating behavior rebounding after dieting. Restraint theory is helpful in understanding this positive association.

Restrained eating is described as efforts to manage body weight by cognitively controlling food intake (Ruderman, 1986). Restraint theory proposes that dieting contributes to overeating and eating disorders via several mechanisms, one of which is disinhibition of food intake after a dietary violation (Herman, Polivy, & Leone, 2005; Polivy & Herman, 1985, 1993). The developers of this theory have shown that restrained eaters show elevated food intake after being forced to consume forbidden amounts or types of food (Herman & Polivy, 2004). Compelling support for a meaningful relationship between dietary restraint and BMI comes from research that shows that restrained eating scores are uniquely associated with BMI and subsequent weight gain across a 4-year time span in same-sex twins after accounting for genetic and shared environmental factors (Schur, Heckbert, & Goldberg, 2010). Thus, it may be that individuals with dieting-related eating disorder symptomatology develop rigid rules regarding what to eat and how much to eat, and when they break these rules and experience distress, they overeat and gain weight.

The significant negative relationship between self-compassion and BMI found in this study is a novel contribution to the literature. No research to date has documented a significant link between these variables. This inverse relationship may be explained by greater engagement in self-nourishing healthy weight management behaviors in self-compassionate individuals, motivated by a desire to care for the self. For example, self-compassionate individuals may eat a more balanced and less calorie-dense diet or engage in more physical activity. Given previous research, these individuals may be less fixated on their body shape or weight and thus less motivated to engage in weight management behaviors out of a sense of duty, a desire to dominate and modify the physical self to achieve a sense of self-control, or a desire to punish the self for perceived mistakes. It may be that healthy weight management behaviors motivated by a desire to care for the self may facilitate consumption of a more balanced and less calorie-dense diet and more physical activity, which in turn is reflected in a lower BMI. A relatively lower BMI among self-compassionate individuals may simply be a beneficial by-product of engaging in more health behaviors motivated by greater self-nourishing motivation. Future research should investigate differences in reasons for engagement in healthy weight management activities among individuals high and low in self-compassion, specifically focusing on self-punishing and self-nourishing motivational factors. Researchers may also want to investigate shifts in self-compassion levels and levels of these motivational factors over time and how they relate to enjoyment and engagement in various weight management activities.

These findings and related hypotheses also align with the hypothesized significant positive relationship between self-compassion and mindful eating. The positive correlational value between these variables ($r = .34$) is very similar to the previously evidenced positive correlational value between self-compassion and intuitive eating ($r = .39$; Schoenefeld & Webb, 2013). This finding is a novel contribution to the literature and suggests that those who are self-compassionate may engage in more mindful eating because they view mindful eating as an act of self-kindness that they deserve to experience. The positive relationship between self-compassion and mindful eating may also be explained by the shared component of mindfulness. Both self-compassion and mindful eating involve awareness, curiosity and openness to experience, introspection, and a desire to acknowledge and respect the self. It may be that more mindful individuals are more likely to be self-compassionate and engage in mindful eating.

Mindful eating was not significantly correlated with BMI as hypothesized. This finding was surprising given previous research that demonstrated a significant albeit small negative relationship between these variables (Moor et al., 2013). It may be that mindful eaters do not necessarily have healthy diets and in fact consume highly caloric and processed food, but in a mindful manner. Future research should investigate the relationship between mindful eating and dietary quality. Another possibility is that mindful eating may not predict BMI among college students, but it may predict this variable among older adults because of physiological changes associated with aging. In addition, mindful eating may not predict BMI in college students because they may face fewer barriers (time, energy, financial barriers) to eating balanced, appropriate calorie diets as compared

with older individuals or individuals of a similar average age without a college education.

Mindful eating was not significantly correlated with eating disorder symptomatology, which was also contrary to our hypothesis. It may be that these constructs feature little overlap, such that some mindful eaters have disordered eating symptomatology and others do not. Some restrictive eaters following extreme low-calorie diets or diets that eliminate certain food groups may practice mindful eating with the aim to enjoy the small quantities or restricted types of food they ingest. Other individuals with disordered eating symptomatology may develop mindful eating skills while trying to develop a healthier relationship with food. Mindful eating may help them develop more attunement to the body's energy needs and more acceptance of negative emotional and cognitive responses to food as they attempt to develop more normalized eating patterns.

Given that mindfulness is one component of self-compassion, we questioned whether the construct of mindfulness and one of its representations (mindful eating behavior) might interact with self-compassion to predict BMI and disordered eating symptomatology. Specifically, it was suspected that there would be a more significant negative relationship between self-compassion and BMI and between self-compassion and eating disorder symptomatology in individuals high in mindful eating as compared with individuals low in mindful eating. When considering how to address this question, mediational analyses did not seem suitable given the fact that mindful eating features substantial differences from the broad mindfulness component of self-compassion. Thus, there were not presumed sequential indirect effect chains from self-compassion to mindful eating to either disordered eating symptomatology or BMI. Results from moderation analyses revealed that the predictive relationships between self-compassion and BMI and between self-compassion and disordered eating symptomology did not depend on levels of mindful eating. It may be that the construct of self-compassion subsumed the majority of beneficial components of the construct of mindful eating through its measurement of broad mindfulness. For example, they both involve active awareness of one's internal cues (physical, emotional, mental), valuing and trusting them, and using them to guide behavior. The significant positive correlation between self-compassion and mindful eating attests to their shared variance. Future research should measure broad mindfulness and conduct mediation analysis to determine if the inverse relationship between self-compassion and BMI or self-compassion and eating disorder symptomatology is partially or fully explained by broad mindfulness or if these relationships remain statistically stable.

This study provided additional support for existing literature that demonstrates that self-compassion is an important predictor of eating disorder symptomatology. It suggested that self-compassion is specifically predictive of dieting-related eating disorder symptomatology. In addition, it provided the unique contribution that self-compassion is positively predictive of mindful eating and negatively predictive of BMI. However, given past research suggesting that self-compassion is not significantly related to BMI, more evidence should still be gathered on this variable pair.

Limitations

A primary limitation in this study was the calculation of the primary outcome variable of BMI from self-reported height and weight, which limits the interpretation of the results. Future researchers should assess BMI using objective measurement. A second limitation of the study was its correlational cross-sectional design. This type of design reveals the direction and strength of relationships between variables at one point in time, but it does not provide information on causality that would allow for causal interpretations. Other limitations of the current study include an unequal number of females and males included in the study sample and the lack of assessment and control for potentially relevant variables, such as psychopathology, exposure to self-compassion, mindful eating, or other mindfulness-related concepts or training. The current study's findings are only directly generalizable to traditional college students. Researchers may wish to replicate in younger or older age groups, in nontraditional college students, or in young adults that are not attending college. The relationships among the current study's variables should be investigated further in more diverse samples with appropri-

ate assessment and control for potentially relevant variables.

Practical Application of Current Findings

Correcting for such limitations, replication of these findings support another important step in weight management research—evaluating the efficacy of self-compassion and mindful eating (SC-ME) training programs in improving body image, reducing disordered eating symptomatology, reducing mindless eating, and promoting healthy weight management behaviors in college students. Mental health professionals may also want to investigate the use of self-compassion in prevention and treatment programs for poor body image, disordered eating, and overweight/obesity in diverse groups of individuals. Recently, other researchers have made similar recommendations for investigating eating disorder symptomatology prevention programs that incorporate self-compassion (Kelly et al., 2014; Schoenefeld & Webb, 2013). Health professionals who work with college students may also find the Self-Compassion Scale (short or long form) or Mindful Eating Questionnaire helpful in determining whether treatments involving self-compassion and mindful eating are able to effectively increase self-compassion and mindful eating (Framson et al., 2009; Neff, 2003b; Raes et al., 2011). Furthermore, clinicians and researchers may benefit from investigating whether increases in self-compassion and mindful eating are related to improvements in treatment-targeted cognitive, affective, and behavioral variables (e.g., body image acceptance and satisfaction, eating disorder symptomatology, diet quality, weight).

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