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The unique associations between self-compassion and eating disorder psychopathology and the mediating role of rumination

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ABSTRACT

Mindfulness reduces eating disorder (ED) psychopathology. Self-compassion is a related but distinct construct that may predict other clinical outcomes more strongly than does mindfulness. Previous evidence suggests that self-compassion is associated with less ED psychopathology, although no studies have compared the unique effects of self-compassion and mindfulness. Moreover, few studies have explored mechanisms of this association. The current survey study explored the unique association between self-compassion and ED psychopathology, controlling for mindfulness, as well as whether depressive rumination mediates this association. One hundred and ninety undergraduates completed questionnaires assessing self-compassion, mindfulness, depressive rumination, and ED psychopathology at baseline and five months later. In cross-sectional and longitudinal analyses, self-compassion predicted ED psychopathology even when controlling for mindfulness. By contrast, mindfulness did not predict ED psychopathology when controlling for self-compassion. Depressive rumination mediated the unique association between self-compassion and ED psychopathology in cross-sectional but not longitudinal analyses. The current findings suggest that self-compassion may be a more proximal predictor of ED psychopathology than is mindfulness. Additional research will need to further explore whether depressive rumination is a mechanism of this effect.

1. Introduction

Mindfulness, defined as a unique way of paying attention to the present moment with non-judgmental awareness (Bishop et al., 2004; Shapiro et al., 2006), reduces eating disorder (ED) psychopathology and informs ED treatment programs (Katterman et al., 2014; Kristeller, 2015; Wanden-Berghe et al., 2010). A similar yet distinct construct from mindfulness is self-compassion. Self-compassion is a way of relating to oneself when suffering (Neff, 2003). Individuals who are self-compassionate treat themselves with kindness, understand that suffering is a common human experience, and hold painful thoughts and emotions in balanced awareness. Self-compassion contributes to better processing of negative emotions and is associated with less self-criticism, depression, and anxiety (Barnard and Curry 2011; Leary et al., 2007; Neff, 2003). Mindfulness and self-compassion predict similar clinical outcomes, although recent research has discovered unique effects of each construct (Van Dam et al., 2011; Woodruff et al., 2014). Similar to mindfulness, self-compassion is associated with fewer ED-related outcomes (for a review, see Braun et al., 2016). However, no studies to date have compared the unique effects of mindfulness versus self-compassion on ED psychopathology. Moreover, little is known about the mechanisms behind self-compassion's association with ED psychopathology. Eating disorders, including anorexia nervosa, bulimia nervosa, and binge-eating disorder, are serious mental disorders, with lifetime prevalence rates estimated at approximately 1% (Udo and Grilo, 2018). Disordered eating is also highly prevalent in nonclinical populations, with approximately 50% of women and 30% of men engaging in unhealthy weight control behaviors (Haynos et al., 2018). A better understanding of self-compassion's unique relationship with ED psychopathology, and potential mechanisms, can expand our understanding of the cognitive processes behind disordered eating and inform treatments.

Rooted in the Buddhist tradition, self-compassion is a manner of relating to oneself when suffering. Individuals who are self-compassionate treat themselves with kindness, understand that suffering is a common human experience, and are able to hold painful thoughts and emotions in balanced awareness. The distinctions between mindfulness and self-compassion are worth noting. One facet of self-compassion is defined as “mindfulness” and is conceptualized as an attitude of equanimity towards unpleasant thoughts and emotions. By contrast, general

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mindfulness is a form of attention regulation that applies to all experiences, whether positive, negative, or neutral (Neff and Dahm, 2015). Thus, the mindfulness component of self-compassion differs from the general construct of mindfulness in that it specifically relates to personal suffering rather than general awareness of all experiences. In addition, self-compassion also encompasses an individual's emotional response and perspective on suffering, making it a construct that covers a wider range of the human experience (e.g. self-regulation, emotional experience of pain, worldview, attitude towards self) than does mindfulness.

Empirically, self-compassion and mindfulness account for unique variance in well-being (Baer et al., 2012; Van Dam et al., 2011), suggesting that they are not identical constructs. Researchers have also started to compare their relative predictive strength. For instance, self-compassion is a stronger predictor than mindfulness of depressive symptoms, anxiety, quality of life, anger, and aggressive behavior (Fresnics and Borders, 2016; Van Dam et al., 2011; Woodruff et al., 2014). It therefore may be useful to examine the unique effect of self-compassion on ED outcomes, controlling for mindfulness, in order to examine whether self-compassion is also a stronger predictor of ED psychopathology than is mindfulness.

Initial research suggests that self-compassion predicts less disordered eating. Higher self-compassion is associated with less bulimic symptoms, such as binge eating, in both clinical and non-clinical samples (Ferreira et al., 2013; Webb and Forman, 2013). It is also associated with less eating and weight concerns, body dissatisfaction, drive-for-thinness, and dietary restraint (Adams and Leary, 2007; Ferreira et al., 2014; Kelly et al., 2014; Maraldo et al., 2016; Wasylkiw et al., 2012). In an experimental study, female restrained eaters ate junk food (a donut) while watching TV, after which some participants received instructions to induce self-compassionate thinking whereas others did not (Adams and Leary, 2007). Restrained eaters given the self-compassion induction experienced less emotional distress and were less likely to engage in subsequent overeating compared to controls. Their eating patterns resembled those of un-restrained eaters. Thus, previous studies suggest that less self-compassion is associated with more ED psychopathology. However, none of these studies controlled for mindfulness, so the unique effect of self-compassion is unknown. Moreover, there exists little understanding of the mechanisms of the associations between self-compassion and ED psychopathology, which could inform treatment programs. We propose that depressive rumination may be one such mechanism.

Depressive rumination, or the tendency to perseverate on causes and consequences of sad moods (Nolen-Hoeksema et al., 2008), is associated with greater ED psychopathology. Rather than effectively resolving problems, ruminators relive negative past experiences and brood about why they are feeling sad. Depressive rumination is associated with increased ED psychopathology and predicts the onset of binge-eating and purging behaviors among undergraduate students (Gordon et al., 2012; Wang and Borders, 2018) and adolescent females (Holm-Denoma and Hankin, 2010; Nolen-Hoeksema et al., 2007). It is also associated with ED psychopathology among individuals with anorexia nervosa (Rawal et al., 2010; Startup et al., 2013), bulimia nervosa (Naumann et al., 2015), and binge-eating disorder and obesity (Wang et al., 2017). According to Escape Theory (Heatherton and Baumeister, 1991), disordered eating is motivated by a desire to escape self-awareness of unpleasant emotions or thoughts. Depressive rumination maintains and exacerbates negative thoughts and feelings. Therefore, ED behaviors may function as an escape from the distress caused by ruminative thinking (Nolen-Hoeksema et al., 2008).

Self-compassion is also associated with less depressive rumination. For instance, in a study assessing self-compassion and psychological functioning, therapist- and self-reported self-compassion following an experiential exercise predicted less depressive rumination (Neff et al., 2007). A self-compassion intervention for college women reduced depressive rumination, compared to a time management control group (Smeets et al., 2014). Depressive rumination also mediated the associations between self-compassion and both depressive and anxious symptoms (Krieger et al., 2013; Raes, 2010). Thus, greater self-compassion is associated with less depressive rumination, perhaps because it leads to fewer negative emotions and less harsh self-judgment in the face of negative events (Leary et al., 2007). We suggest that depressive rumination may be a mechanism of the unique association between self-compassion and ED psychopathology, even controlling for mindfulness.

The current survey study examined the unique associations between self-compassion, depressive rumination, and ED psychopathology, both cross-sectionally and longitudinally, in a sample of undergraduate students. We hypothesized that greater self-compassion would be associated with less ED psychopathology concurrently and 5 months later, even after controlling for mindfulness. To further test the relative predictive strength of self-compassion versus mindfulness, we ran statistical models with mindfulness as the independent variable and self-compassion as the covariate. Finally, we hypothesized that depressive rumination would statistically mediate the unique association between greater self-compassion and less ED psychopathology, both concurrently and over time.

2. Methods

2.1. Participants and procedure

The sample consisted of 190 undergraduates recruited from a Psychology subject pool at a college in the Northeast of the United States of America (M_{age} = 19.3, SD_{age} = 1.10, 84% female). Participants identified as White/Caucasian, (63.2%), Asian/Asian American (10.5%), Hispanic/Latino (7.9%), South Asian/Indian (5.8%), Black/African American (2.6%), multi-ethnic (4.2%), and "other" (3.2%). Participants' BMI scores ranged from 16.82 to 45.91 (M = 23.73, SD = 4.63). The college's institutional review board approved all research and recruitment procedures.

Participants completed questionnaires at the beginning of the fall semester (T1) and were compensated with course credit. All participants provided informed consent before completing the 30-minute online questionnaire. All measures were presented in a randomized order. Five months later at the beginning of the spring semester (T2), all participants were invited to complete the measures again in return for additional course credit or a $5 gift card; 118 (62%) participants agreed to participate at T2. Participants who only completed T1 measures did not differ from those who completed both time points on any study variables, t's < 1.15, p's > .25.

2.2. Measures

2.2.1. Self-compassion

The 12-item Self-Compassion Scale – Short Form (Raes et al., 2011) assesses how participants typically react when facing a struggle or stressor. It consists of six subscales: self-kindness (e.g. "I'm kind to myself when I'm experiencing suffering"), self-judgment (e.g. "I'm disapproving and judgmental about my own flaws and inadequacies"), common humanity (e.g. "I try to see my failings as part of the human condition"), isolation (e.g. "When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world"), mindfulness (e.g. "When I fail at something important to me I try to keep things in perspective"), and over-identification (e.g. "When something upsets me I get carried away with my feelings"). Items are assessed on a 5-point scale from 1 (*almost never*) to 5 (*almost always*), and higher summed scores indicate greater self-compassion. When constructing the total self-compassion score, the self-judgment, isolation, and over-identification subscales are reversed scored. The SCS-SF has near perfect correlation with the original 26-item Self-Compassion Scale, which is correlated with positive mental health outcomes, self-esteem, life satisfaction, suggesting construct validity (Neff, 2003). Neff

(2016) argues that the brief scale as a psychometrically valid instrument consisting of both compassionate and uncompassionate responses. The current study only used T1 data for this measure (α = 0.85).

2.2.2. Mindfulness

We measured mindfulness with the short form of the Freiburg Mindfulness Inventory (FMI; Walach et al., 2006). This 14-item measure is appropriate for individuals unfamiliar with the Buddhist tradition. It assesses openness to experience (e.g., "I am open to the experience of the present moment"), mindful presence (e.g., "I sense my body whether cooking, cleaning, or eating"), non-judgmental acceptance (e.g., "I see my mistakes and difficulties without judging them"), and insight (e.g., "I pay attention to what's behind my actions"). Items are assessed on a 4-point scale ranging from 1 (*rarely*) to 4 (*almost always*), and higher summed scores indicate greater mindfulness. This measure correlates with other measures of mindfulness (Baer et al., 2005; Feldman et al., 2008), suggesting convergent validity. The current study only used T1 data for this measure (α = 0.87). We will refer to this measure as FMI-mindfulness below.

2.2.3. Depressive rumination

The 22-item Ruminative Responses Scale (Nolen Hoeksema and Morrow, 1991) assesses the frequency of general responses to a depressed or sad mood (e.g. "think about a recent situation, wishing it had gone better") on a scale from 1 (*almost never*) to 4 (*almost always*). Higher averaged scores indicate more depressive rumination. The scale correlates with other measures of rumination (Feldman et al., 2008), similar cognitive processes such as worry (Fresco et al., 2002), and depressive symptoms (Roberts et al., 1998). In the current sample, Cronbach's alpha was 0.95 (T1) and 0.94 (T2).

2.2.4. Eating disorder psychopathology

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn and Beglin, 1994) assessed global eating disorder (ED) psychopathology. This 28-item measure includes items assessing dietary restraint, weight concerns, shape concerns, and eating concerns over a period of 28 days. Total scores were calculated by averaging responses to the 22 items assessing eating-disorder psychopathology (excluding the 6 items assessing frequency of binge eating and compensatory behaviors). Higher averaged total scores indicate greater ED psychopathology. The EDE-Q has shown strong validity (Berg, Peterson et al., 2012). Cronbach's α for the total measure was 0.96 (T1) and 0.95 (T2).

2.2.5. Additional measures

Self-reported demographics (e.g., gender identity, age, ethnicity, sexual orientation) were assessed at the end of the survey. For transparency, we disclose all other measures collected in this study. These include self-reported angry rumination, impulsivity, cognitive flexibility and attention to detail, compulsive food restriction, and binge eating. We did not analyze the data collected from these measures for the current study, as they were collected for separate purposes and have been used in previous publications to address other questions (Wang and Borders, 2018).

2.3. Data analyses

We first tested cross-sectional (T1) total effect models with self-compassion predicting ED psychopathology, both with and without controlling for FMI-mindfulness. We then added depressive rumination to these models as a mediator. We next tested whether self-compassion uniquely predicted changes in ED psychopathology, and whether this was mediated by changes in depressive rumination. To do this, we ran the same models with T2 depressive rumination as the mediator and T2 ED psychopathology as the dependent variable, controlling for T1 rumination and ED psychopathology. Finally, we switched the roles of self-compassion and FMI-mindfulness in the cross-sectional and longitudinal models. In other words, we tested whether FMI-mindfulness directly and indirectly predicted ED psychopathology via depressive rumination, both with and without controlling for self-compassion.

In all models, we examined mediation by calculating indirect effects of the independent variable (self-compassion or FMI-mindfulness) via depressive rumination on ED psychopathology. Using the SPSS macro PROCESS (Hayes, 2012), we examined mediation by calculating indirect effects, which are the product of the path coefficients for the (a) independent variable to the mediator and the (b) mediator to the dependent variable after controlling for the independent variable (Preacher and Hayes, 2008). To account for potential heteroscedasticity in the residuals, we used the HC3 estimator of standard errors in PROCESS (Hayes and Cai, 2007). Indirect effects were examined using 5000 bootstrap samples (Preacher and Hayes, 2008). We calculated the bootstrap estimates and bias-corrected 95% confidence intervals for each indirect effect; a confidence interval that does not include zero indicates a significant effect of mediation.

3. Results

All variables met assumptions of normality. Descriptive statistics and zero-order correlations for all variables are presented in Table 1. Women ($M = 3.06$, $SD = 1.38$) reported significantly greater ED psychopathology at T1 than did men ($M = 2.04$, $SD = 1.03$), $t(184) = -3.57$, $p < .001$. Women ($M = 2.90$, $SD = 1.44$) also reported more ED psychopathology at T2 than did men ($M = 1.86$, $SD = 1.29$), $t(113) = -0.3.12$, $p < .01$. Therefore, we included gender as a covariate throughout our mediational analyses.

As expected, greater self-compassion was significantly correlated with more FMI-mindfulness and less depressive rumination and ED psychopathology (at both time points). In line with previous research, greater FMI-mindfulness correlated with less depressive rumination and ED psychopathology, and greater depressive rumination was associated with more ED psychopathology.

First, we tested cross-sectional total effects and mediational models using T1 variables (see Fig. 1). We ran separate models both with and without controlling for FMI-mindfulness, and all models controlled for gender (see Table 2 for all coefficients). As expected, the total effect of self-compassion on ED psychopathology was significant, regardless of whether FMI-mindfulness was statistically controlled. Next, we added depressive rumination as a mediator. In both models, self-compassion significantly predicted depressive rumination, which predicted greater ED psychopathology. The direct effect of self-compassion on ED psychopathology, with the mediator included, was significant. In addition, the indirect effects were significantly different from 0, indicating that depressive rumination significantly mediated the association between self-compassion and ED psychopathology, whether or not we controlled for FMI-mindfulness.

To evaluate whether these associations held over time, we ran the

Table 1
Descriptive statistics and correlations among study variables.

Variables	1.	2.	3.	4.	5.	6.
1. Self-compassion	–					
2. FMI-mindfulness	.53**	–				
3. T1 depressive rumination	−.56**	−.27**	–			
4. T2 depressive rumination	−.46**	−.23*	.65**	–		
5. T1 ED psychopathology	−.42*	−.18*	.39**	.36*	–	
6. T2 ED psychopathology	−.41**	−.22*	.45*	.45*	.85**	–
Mean	2.92	2.56	2.13	1.93	2.84	2.74
SD	.05	.03	.06	.06	1.43	1.39
Range	1.42–4.67	1–3.86	1–4	1–3.86	0–6	0–6

Notes: FMI = Freiburg Mindfulness Inventory. ED = Eating Disorder. *$p < .05$, **$p < .01$.
Significance level refer to uncorrected *p*-values.

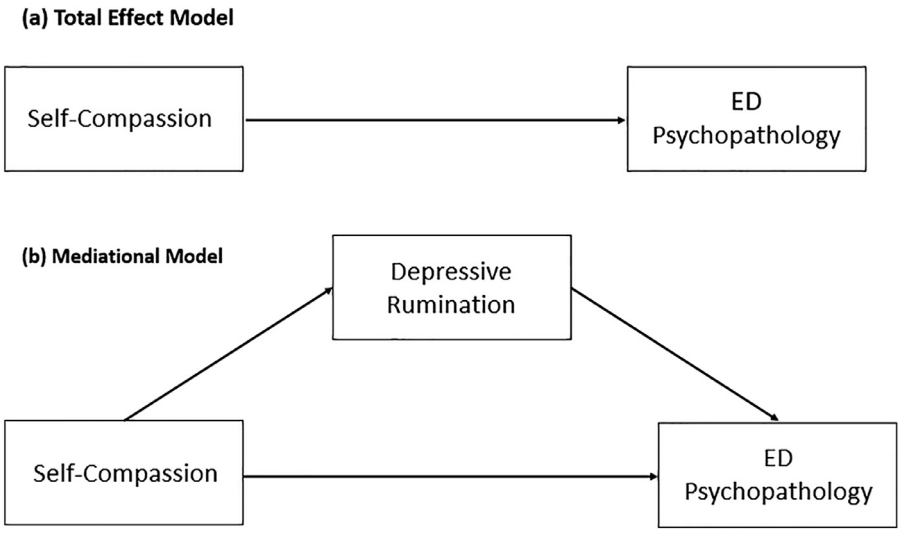

Fig. 1. Representation of mediation pathways (coefficients presented in Table 2): (a) Total effect model of self-compassion predicting ED Psychopathology. (b) Mediation model with depressive rumination mediating the association between self-compassion and ED Psychopathology.

same models with T2 depressive rumination and ED psychopathology, controlling for T1 rumination and ED psychopathology. Once again, we ran separate models both with and without controlling for FMI-mindfulness, and all models controlled for gender (see Table 2 for all coefficients). In the total effects models, self-compassion failed to predict T2 ED psychopathology, whether or not we controlled for FMI-mindfulness. When we added T2 depressive rumination as a mediator, self-compassion did not predict T2 depressive rumination, although T2 depressive rumination did predict T2 ED psychopathology. Accordingly, the indirect effect for depressive rumination was not significant, whether we controlled for FMI-mindfulness. Thus, self-compassion did not directly or indirectly predict changes in ED psychopathology 5 months later via depressive rumination.

Finally, to better test the relative predictive strength of self-compassion versus mindfulness, we re-ran all of the above models with FMI-mindfulness as the independent variable and self-compassion as the covariate (see Table 3 for all coefficients). In the cross-sectional models, when we did not control for self-compassion, FMI-mindfulness predicted less depressive rumination and ED psychopathology and the indirect effect was significant. However, when controlling for self-compassion, FMI-mindfulness did not uniquely predict ED psychopathology and the indirect effect was no longer significant. Thus, after controlling for self-compassion, we no longer found support for depressive rumination mediating the association between FMI-mindfulness and ED psychopathology. In longitudinal analyses, FMI-mindfulness did not predict changes in either depressive rumination or ED psychopathology, and the indirect effects were not significant, with or without controlling for self-compassion.

4. Discussion

This survey study with undergraduates examined the unique effect of self-compassion on eating disorder (ED) psychopathology, over and above mindfulness, and whether this effect was mediated by depressive rumination. Specifically, we tested whether self-compassion was associated with less ED psychopathology concurrently and 5 months later, with and without controlling for mindfulness. We also examined whether mindfulness was associated with ED psychopathology, with and without controlling for self-compassion. Finally, we explored whether lower depressive rumination statistically mediated the unique association between greater self-compassion and less ED psychopathology, both concurrently and over time.

As hypothesized, greater self-compassion was associated with less concurrent ED psychopathology, even when we controlled for mindfulness. These results build on past evidence that self-compassion predicts less ED psychopathology (Adams and Leary, 2007; Ferreira et al., 2013; Kelly et al., 2014). Finding support for this association even when controlling for mindfulness suggests that people's attitudes toward their own suffering has a unique effect on disordered eating. Although the zero-order correlation was significant, self-compassion did not predict ED psychopathology five months later after controlling for current ED psychopathology. Another longitudinal study also found that ED pathology did not predict changes in self-compassion over a five semester period (Stutts and Blomquist, 2018). Thus, trait self-compassion and ED psychopathology appear to be concurrently associated but not predictive of each other over time. It is possible that self-compassion is associated with concurrent disordered eating, which in turn predicts

Table 2
Path coefficients and indirect effects with self compassion as the independent variable.

Variables	a path	b path	c path	c` path	R^2	Indirect effect (*SE*) / [CI]
Not controlling for FMI-mindfulness						
T1 ED Psychopathology [a]	−.56**	.23**	−.40**	−.27**	.28**	−.26 (.10) / [−.46, −.07]
T2 ED Psychopathology [b]	−.12	.17*	−.01	.002	.72**	−.04 (.05) / [−.18, .01]
Controlling for FMI-mindfulness						
T1 ED Psychopathology [a]	−.59**	.23**	−.43**	−.31**	.28**	−.26 (.11) / [−.50, −.07]
T2 ED Psychopathology [b]	−.12	.17*	.03	.03	.72**	−.04 (.05) / [−.19, .02]

Notes: FMI = Freiburg Mindfulness Inventory. ED = Eating Disorder. Paths coefficients are standardized. The c path indicates the total effect; the c` path indicates the direct effect. See Fig. 1 for representations of these and the a and b paths. Bias-corrected 95% confidence intervals (*CI*) that do not contain 0 indicate a significant indirect effect. *$p < .05$, **$p < .01$.

[a] T1 Depressive rumination was the mediator.

[b] T2 Depressive rumination was the mediator; T1 Depressive Rumination and ED Psychopathology were included as covariates.

Table 3
Path coefficients and indirect effects with FMI-mindfulness as the independent variable.

Variables	a path	b path	c path	c` path	R^2	Indirect effect (*SE*)/ [CI]
Not Controlling for Self-Compassion						
T1 ED Psychopathology[a]	−.28**	.37**	−.17*	−.05	.23**	−.29 (.10) / [−.52, −.12]
T2 ED Psychopathology[b]	−.05	.17*	−.05	−.05	.72**	−.03 (.05) / [−.20, .03]
Controlling for Self-Compassion						
T1 ED Psychopathology[a]	.04	.23**	.05	.08	.28**	.03 (.06) / [−.07, .18]
T2 ED Psychopathology[b]	−.01	.17*	−.06	−.06	.72**	−.01 (.05) / [−.17, .07]

Notes: FMI = Freiburg Mindfulness Inventory. ED = Eating Disorder. Coefficients are standardized. The c path indicates the total effect; the c` path indicates the direct effect. Bias-corrected 95% confidence intervals (*CI*) that do not contain 0 indicate a significant indirect effect. *$p < .05$, **$p < .01$.

[a] T1 Depressive rumination was the mediator.

[b] T2 Depressive rumination was the mediator; T1 Depressive Rumination and ED Psychopathology were included as covariates.

subsequent disordered eating. Future research using experience sampling methodology could tease out temporal associations and fluctuations in these constructs over time.

When we switched the roles of self-compassion and mindfulness in analyses, a different pattern of results emerged. Without self-compassion as a covariate, mindfulness predicted concurrent ED psychopathology. After controlling for self-compassion, however, this effect disappeared. These results align with previous findings that self-compassion more strongly predicted depression, anxiety, anger, and aggression than did mindfulness (Fresnics and Borders, 2017; Van Dam et al., 2011; Woodruff et al., 2014). Whereas mindfulness involves more general processes such as attention regulation and non-judgment of all experiences, self-compassion explicitly focuses on how one relates to one's own suffering. Because suffering arguably underlies most forms of psychological distress, individuals' attitude towards their suffering might be a more proximal predictor and therefore contribute more variance to clinical outcomes such as ED psychopathology.

Whether depressive rumination constitutes a mechanism for the unique effect of self-compassion on ED psychopathology is unclear from the current findings. In cross-sectional analyses, depressive rumination statistically mediated the unique association between self-compassion and ED psychopathology. However, no mediation emerged in longitudinal analyses. Specifically, self-compassion did not predict changes in depressive rumination or ED psychopathology 5 months later. Thus, we cannot conclude that depressive rumination is a robust mediator of the link between trait self-compassion and ED psychopathology. The significant mediation in cross-sectional analyses may simply reflect shared variance between self-compassion and depressive rumination, rather than suggesting a causal relationship. Previous evidence that depressive rumination mediates the effect of self-compassion on various clinical outcomes also relied on cross-sectional designs (Krieger et al., 2013; Raes, 2010). However, self-compassion interventions do lead to decreases in depressive rumination over several weeks (Neff et al., 2007; Smeets et al., 2014). Similarly, self-compassion treatments reduce ED symptomatology (Albertson et al., 2015; Gale et al., 2014). It may be that trait self-compassion by itself does not contribute to changes in rumination or ED symptoms, but that intentional efforts to increase self-compassion are necessary in order to decrease ruminative tendencies and subsequent disordered eating. Additional longitudinal and experimental research is needed to understand whether depressive rumination causally mediates the association between self-compassion and ED psychopathology.

This study has some notable limitations. First, all study variables were assessed via self-report, which leaves open the possibility of response bias and dishonest reporting of ED symptoms. Another study limitation was assessing mindfulness as a unidimensional construct. Past research suggests that the association between mindfulness and mental health is stronger when multi-faceted measures of mindfulness are used (Woodruff et al., 2014). Furthermore, using a unidimensional construct may not provide a comprehensive measure of mindfulness. Third, only 62% of participants completed the T2 measures. Fortunately, these individuals did not differ on any initial variables from participants who completed both time points. Thus, drop out likely did not influence the pattern of our results, other than perhaps leading to lower power to detect effects. Finally, our non-clinical sample precludes generalization to individuals with diagnosable eating disorders. Future research should examine our hypotheses in a treatment-seeking sample, to determine whether self-compassion uniquely predicts diagnosable eating disorders via decreased depressive rumination. Furthermore, studies with a larger sample size and greater power should test whether gender moderates our mediational results.

Despite these limitations, this study provides additional evidence for the importance of self-compassion for understanding ED psychopathology. Our findings suggest that people's attitude toward their own suffering may be a more proximal predictor of ED psychopathology than is general mindfulness. If disordered eating serves as an escape from self-awareness and distressing thoughts, as suggested by Escape Theory (Heatherton and Baumeister, 1991), then approaching these stressors not only mindfully, but also with an attitude of equanimity and acceptance may provide the ability to tolerate pain. Self-compassion and it's unique relationship to suffering provides an additional facet to coping with distressing emotional experiences.

Ours and others' results may also shed light on important mechanism of mindfulness- and acceptance-based interventions for ED psychopathology (Kristeller and Wolever, 2010; Juarascio et al., 2010, 2013; Wanden-Berghe et al., 2010). Although it is not the focus of these programs, self-compassion may be a key mechanism by which mindfulness- and acceptance-based interventions decrease disordered eating. In fact, previous studies found that increased self-compassion mediated the effect of mindfulness interventions on decreases in stress and depressive symptoms (Kuyken et al., 2010; Shapiro et al. 2006). Future studies should examine whether increased self-compassion also mediates the effect of mindfulness-and acceptance-based interventions on ED psychopathology.

Future research should also examine whether decreases in depressive rumination constitute a mechanism by which self-compassion interventions reduce ED psychopathology. Compassion-focused therapy (Gilbert, 2010) uses a variety of exercises (e.g., visualizations, self-compassionate behaviors) to help clinical patients cultivate self-kindness and decrease self-criticism. The mindful self-compassion program (Neff and Germer, 2013) is geared toward non-clinical populations and employs education, group discussion, loving-kindness practice, and other experiential exercises (e.g., placing one's hand on one's heart during times of stress) to develop self-compassion. Initial evidence suggests that these compassion-focused programs reduce ED symptomatology in both clinical and non-clinical populations (Albertson et al., 2015; Kelly and Carter, 2015; Gale et al., 2014). Researchers should examine whether decreased depressive rumination in part accounts for the efficacy of these programs for ED psychopathology.

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