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Self-compassion moderates the relationship between body mass index and both eating disorder pathology and body image flexibility

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ABSTRACT

The current study examined whether self-compassion, the tendency to treat oneself kindly during distress and disappointments, would attenuate the positive relationship between body mass index (BMI) and eating disorder pathology, and the negative relationship between BMI and body image flexibility. One-hundred and fifty-three female undergraduate students completed measures of self-compassion, self-esteem, eating disorder pathology, and body image flexibility, which refers to one's acceptance of negative body image experiences. Controlling for self-esteem, hierarchical regressions revealed that self-compassion moderated the relationships between BMI and the criteria. Specifically, the positive relationship between BMI and eating disorder pathology and the negative relationship between BMI and body image flexibility were weaker the higher women's levels of self-compassion. Among young women, self-compassion may help to protect against the greater eating disturbances that coincide with a higher BMI, and may facilitate the positive body image experiences that tend to be lower the higher one's BMI.

Introduction

Self-compassion has been defined as the tendency to respond to personal distress and inadequacies with self-kindness rather than self-judgment, an attitude of mindfulness rather than over-identification, and the perspective that suffering is common to humanity rather than isolating (Neff, 2003a). Just like self-esteem, self-compassion is a positive attitude toward self and the two variables correlate moderately with one another (Neff, 2003a). However, whereas self-esteem is a positive view of oneself that stems from appraisals of one's worth, attributes, and performance (Rosenberg, 1965), self-compassion derives from the human capacity for caregiving (Gilbert, 2005). It involves showing oneself support and warmth in the face of setbacks and disappointments, and unlike self-esteem, does not require that one's attributes or abilities be superior to those of others. A growing body of research now shows that self-compassion and self-esteem contribute independently to well-being and psychopathology (Neff, 2003a; Neff, Kirkpatrick, & Rude, 2007).

Although both self-compassion and self-esteem appear to play a positive role in psychosocial functioning, self-compassion seems to offer important benefits that self-esteem does not. These benefits are especially salient when examining how individuals respond to personal failures, disappointments, or setbacks. Self-esteem has been associated with greater denial and minimizing of personal failures (Crocker & Park, 2004), and more defensive reactions after negative feedback (Leary, Tate, Adams, Allen, & Hancock, 2007). Self-compassion, by contrast, is associated with acknowledging and taking responsibility for one's role in failures, less overwhelmed emotional reactions, and the motivation to learn from one's mistakes and self-improve (Breines & Chen, 2012; Leary et al., 2007). Self-compassion therefore appears to help weather distress and disappointment in a less personalized, more self-accepting, and growth-promoting way.

There is some evidence to suggest that self-compassion may play a protective role in the area of body image and eating behavior. Wasylkiw, MacKinnon, and MacLellan (2012) found that controlling for self-esteem, female undergraduate students who were higher in self-compassion had fewer body image concerns, greater body appreciation, and less eating-related guilt. Ferreira, Pinto-Gouveia, and Duarte (2013) similarly found that higher self-compassion was associated with a lower drive for thinness in female eating disorder patients and community adults. Controlling for body mass index (BMI) and self-esteem, self-compassion has also been inversely associated with binge eating struggles and positively linked to intuitive eating, which refers to eating according to physiological hunger and satiety cues (Schoenefeld & Webb, 2013; Webb & Forman, 2013). Finally, studies in eating disorder

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patients show that those who experienced greater improvements in self-compassion early in treatment fared better (Kelly, Carter, & Borairi, 2014), and those whose pre-treatment capacity for self-compassion was low fared poorly (Kelly, Carter, Zuroff, & Borairi, 2013).

Although studies to date support a relationship between self-compassion, body image, and eating behavior, there is little research on whether self-compassion can attenuate disappointments or perceived inadequacies in the eating and body image realm. Because self-compassion appears to be an especially valuable protective factor when individuals encounter shortcomings and struggles, it is important to determine whether this holds true across life domains. One study by Adams and Leary (2007) investigated the effects of a self-compassion induction on restrained and guilty eaters. After eating an unhealthy preload, those who were prompted by the experimenter to think more self-compassionately about occasional indulgences had less subsequent disinhibited eating. This study supports the modulating influence that self-compassion may have when one experiences a "setback" or stressor in the realm of eating and body image, and supports the importance of further investigations on this topic.

In today's Western culture, many women may experience an elevated BMI as a setback, stressor, or failure. First, the current "thin ideal" is significantly lower than the average woman's weight, and is physiologically impossible for most women to attain (Hawkins, Richards, Granley, & Stein, 2004). Second, it is difficult to escape media images of women who represent the "thin ideal," and such exposure increases body dissatisfaction and eating disorder symptoms (Buote, Wilson, Strahan, Gazzola, & Papps, 2011; Groesz, Levine, & Murnen, 2002; Hawkins et al., 2004). Third, women with higher BMIs are more frequently the targets of weight stigma, including negative comments, social exclusion, and discrimination (Vartanian & Shaprow, 2008). Fourth, weight stigma and BMI each has been positively associated with disordered eating and body dissatisfaction (Myers & Rosen, 1999; Neumark-Sztainer, Falkner, Story, Perry, Hanna, & Mulert, 2002; Rø, Reas, & Rosenvinge, 2012; Stice, 2002). BMI has also been negatively linked to body image flexibility (Wendell, Masuda, & Le, 2012), which refers to the ability to accept negative thoughts and feelings about one's body while remaining committed to desired and valued behaviors (Sandoz, Wilson, Merwin, & Kellum, 2013). Taken together, findings suggest that within the current sociocultural climate, an elevated BMI may be a source of stress for many women; it may confer vulnerability to eating pathology and undermine women's potential to experience positive body image.

The Present Study

The overarching aim of this study was to examine whether controlling for self-esteem, self-compassion would moderate the relationship between BMI and both eating disorder pathology and body image flexibility among undergraduate females. Our first objective was to determine whether self-compassion would moderate the relationship between BMI and eating disorder pathology – namely, global eating pathology, weight concerns, shape concerns, eating concerns, and dietary restraint. As in past studies, it was expected that higher self-compassion would be associated with less eating disorder pathology (Ferreira et al., 2013) and a higher BMI would be associated with more pathology (Rø et al., 2012; Stice, 2002). Our central hypothesis was that the relationship between BMI and eating disorder pathology would be weaker the higher a woman's level of self-compassion. Because self-compassion has been positively associated with unconditional self-acceptance (Webb & Forman, 2013) and healthier forms of coping and self-regulation in the face of challenges (Kelly, Zuroff, Foa, & Gilbert, 2010; Terry & Leary, 2011), it was thought that women who were higher in self-compassion would be less prone to cope with their higher BMI by engaging in unhealthy eating and weight-control behaviors.

Our second objective was to examine whether self-compassion would moderate the relationship between BMI and body image flexibility. We expected that as in previous studies, self-compassion would be positively related to this acceptance-based form of body image (Ferreira, Pinto-Gouveia, & Duarte, 2011; Schoenefeld & Webb, 2013), and that BMI would be negatively associated with body image flexibility. Our central hypothesis was that level of self-compassion would attenuate the strength of the negative relationship between body image flexibility and BMI. Highly self-compassionate individuals are better able to tolerate and persevere through challenges without becoming overwhelmed (Leary et al., 2007). We therefore expected that women with higher levels of self-compassion would cope more adaptively with the negative body image experiences that tend to coincide with a higher BMI, and that they would be less likely to sacrifice participation in desired and valued behaviors. These two positive coping behaviors of acceptance and commitment to action are inherent to body image flexibility.

Method

Participants

Participants were female undergraduate students recruited from a research participant pool at a medium-sized Canadian university. One participant, aged 64 years, was removed from the final sample due to her outlying age of over 11 *SD*s from the mean. Our final sample consisted of 153 individuals whose mean age was 20.2 years (*SD* = 3.49). The ethnic breakdown was: 48.3% Caucasian; 19.4% South Asian; 12.9% East Asian; 6.5% Southeast Asian; 3.2% Black/African; 3.2% bi-racial; 2.6% West Indian/Caribbean; 1.3% Hispanic; 1.3% Middle Eastern; 0.7% Aboriginal (First Nations); and 0.7% Other.

Measures

BMI (kg/m^2). BMI was calculated based on participants' self-reported height and weight. BMI ranged from 16.8 to 49 in the present sample, and the mean was 23.1 (*SD* = 5.0). The sample breakdown based on typically used BMI categories was: 10.6% underweight (BMI less than 18.5), 66.9% normal weight (BMI between 18.5 and 24.9), 15.9% overweight (BMI between 25 and 29.9), and 6.6% obese (BMI of 30 and higher).

Self-Compassion Scale (SCS; Neff, 2003b). The SCS assesses people's tendency to be compassionate toward themselves at times of distress and disappointment (e.g., "I'm tolerant of my own flaws and inadequacies."). Items are rated along a scale ranging from 1 (*almost never*) to 5 (*almost always*), with higher scores reflecting higher self-compassion. The SCS yields scores on six subscales as well as a total scale score, the latter of which was the focus of the present paper. The scale has demonstrated good construct validity and internal consistency, as well as good 3-week test–retest reliability when administered among both male and female undergraduate students randomly selected from a university subject pool (Neff, 2003b). The Cronbach's alpha in the present sample was .92 indicating adequate internal consistency.

Rosenberg Self-Esteem Inventory (RSE; Rosenberg, 1965). The RSE assesses individuals' global appraisal of their own self-worth (e.g., "I take a positive attitude toward myself"). Ten items, rated from 1 (*strongly disagree*) to 5 (*strongly agree*), are summed, with higher scores indicating greater self-esteem. It has demonstrated strong reliability and validity in many samples, including a

diverse sample of male and female undergraduate students (Robins, Hendin, & Trzesniewski, 2001). Internal consistency was adequate in our sample with a Cronbach's alpha of .81.

Body Image-Acceptance and Action Questionnaire (BI-AAQ; Sandoz et al., 2013). The BI-AAQ assesses body image flexibility – that is, the extent to which individuals are able to tolerate negative body-related thoughts and feelings and pursue important life activities in spite of these concerns (e.g., "I get on with my life even when I feel bad about my body"). It consists of 29 items rated from 1 (*never true*) to 7 (*always true*), with higher scores representing greater body image flexibility. The BI-AAQ has demonstrated strong internal consistency, good test–retest reliability within 2 to 3 weeks, and good construct validity among two primarily female undergraduate samples, correlating negatively with disordered eating cognitions and pathology (Sandoz et al., 2013; Wendell et al., 2012). Ferreira et al. (2011) also found that the Portuguese version of the BI-AAQ discriminated between a clinical sample of eating disorder sufferers and a comparable sample from the general population. Internal consistency of the BI-AAQ in the present sample was high, with a Cronbach's alpha of .95.

Eating Disorder Examination Questionnaire 6.0 (EDE-Q 6.0; Fairburn & Beglin, 1994). The EDE-Q 6.0 is a 28-item measure that assesses eating disorder pathology. Participants report on their experiences over the past 28 days using a rating scale from 0 (*no days/none of the times/not at all*) to 6 (*every day/every time/markedly*), with higher scores indicating greater eating pathology. The EDE-Q yields a total scale score and scores on four subscales: Weight Concern (e.g., "Has your weight influenced how you think about [judge] yourself as a person?"), Shape Concern (e.g., "How dissatisfied have you been with your shape?"), Eating Concern (e.g., "Has thinking about food, eating, or calories made it very difficult to concentrate on things you are interested in?"), and Dietary Restraint (e.g., "Have you been deliberately trying to limit the amount of food you eat to influence you shape or weight?"). The scale has demonstrated adequate internal consistency and good test–retest reliability over 1 to 14 days in various clinical and non-clinical samples, including a community sample of female undergraduate students (Berg, Peterson, Frazier, & Crow, 2012). Cronbach's alphas in the present sample indicated adequate internal consistency. These were .90, .90, .80, and .84 respectively for the subscales, and .95 for the Global score.

Procedure

Participation in this study was made available to female undergraduate students in the university's psychology participant pool. One-half credit toward a psychology course was offered as remuneration. All study tasks occurred online. After providing consent, participants were asked to complete a battery of questionnaires via a secure online survey tool. This survey included all measures listed above, as well as a non-standardized demographics questionnaire that assessed age, ethnicity, weight, and height.

Results

Analytic Strategy

Of the 153 participants in our final sample, BMI data were missing for three, EDE-Q data were missing for two, and self-esteem data were missing for one. Given that the analytic approaches used are unable to retain data from participants with missing observations, only participants with complete data on the variables examined in a given analysis were retained. Distributions for all variables were found to resemble a normal curve, except for BMI whose distribution was negatively skewed. When BMI was log-transformed, it approximated a normal distribution; therefore, the log-transformed variable was used in all analyses.

First, means, *SD*s, and Pearson zero-order correlations were computed between all study variables (see Table 1). Next, all predictor variables were centered so as to facilitate interpretation of the main results. Six hierarchical regressions were used to test our central hypotheses. Criterion variables were five indicators of eating disorder pathology – global eating pathology, weight concerns, shape concerns, eating concern, and dietary restraint – and body image flexibility. Age was initially controlled in all analyses but was never a significant predictor so was removed from the final analyses presented below.

In each hierarchical regression model, self-esteem was entered into Step 1 as a control variable. In Step 2, BMI and self-compassion were added to the model as main effects. Finally, self-compassion × BMI was added in Step 3. Effect size correlations for the complete models (Step 3) were computed and presented in Table 2 using Rosnow and Rosenthal, 1996 formula of $r = [F/(F + df)]^{1/2}$. According to Cohen (1988), $r = .10$ is a small effect and $r = .30$ is a medium effect. In the case of a significant self-compassion × BMI effect, simple slopes were estimated (Aiken & West, 1991) and plotted to depict the relationship between BMI and the criterion variable at low (−1 *SD*), average (mean), and high (+1 *SD*) levels of self-compassion.

Preliminary Results

Consistent with hypotheses, zero-order correlations revealed that BMI was negatively related to body image flexibility and positively related to all forms of eating disorder pathology. In addition, self-compassion was positively related to body image flexibility and negatively related to all forms of eating disorder pathology (see Table 1).

Primary Results

Global eating disorder pathology. Self-esteem made a significant negative contribution to global eating disorder pathology in Step 1, but this contribution disappeared in Step 2 once BMI and self-compassion were entered; the latter two variables were positively and negatively related to global eating disorder pathology respectively (see Table 2). In Step 3, self-compassion × BMI emerged as a significant predictor as hypothesized. Simple slopes analysis revealed that self-compassion moderated BMI's positive contribution to global eating disorder pathology, such that this relationship was significant among women with low and average self-compassion, but not significant among women with high self-compassion (see Table 3 and Fig. 1).

Weight concerns. Similar results were obtained for weight concerns at each step of the hierarchical regression (see Table 2). Self-compassion × BMI was a significant predictor, with simple slopes analysis revealing that the positive relationship between BMI and weight concerns was significant across levels of self-compassion, but weakest among women with high self-compassion (see Table 3 and Fig. 2).

Shape concerns. Results from the hierarchical regression were similar to those obtained in Steps 1 and 2 for global eating disorder pathology. However, in Step 3, self-compassion × BMI was not significant (see Table 2), contrary to our hypothesis.

Eating concerns. The pattern of results for eating concerns was identical to that obtained for global eating disorder pathology (see Table 2), with self-compassion moderating the strength of the positive relationship between BMI and eating concerns. Again, the relationship between these two variables was significant among women with low and average self-compassion, but not significant among women with high self-compassion (see Table 3 and Fig. 3).

Table 1
Means, standard deviations (*SD*) and zero-order correlations between study variables.

		1	2	3	4	5	6	7	8	9	Mean	*SD*
1.	BMI	–	0.04	−0.17*	−0.26**	0.28***	0.37***	0.29**	0.24**	0.11	23.10	5.04
2.	Self-compassion		–	0.62***	0.41***	−0.41***	−0.40***	−0.44***	−0.32***	−0.29***	2.88	0.65
3.	Self-esteem			–	0.39***	−0.33***	−0.31***	−0.35***	−0.30***	−0.20*	33.60	6.41
4.	Body image flexibility				–	−0.78***	−0.77***	−0.76***	−0.69***	−0.58***	5.07	1.17
5.	Global eating pathology					–	0.94***	0.93***	0.84***	0.85***	1.87	1.24
6.	Weight concerns						–	0.90***	0.73***	0.69***	2.20	1.50
7.	Shape concerns							–	0.70***	0.69***	2.59	1.53
8.	Eating concerns								–	0.62***	0.97	1.09
9.	Dietary restraint									–	1.68	1.44

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

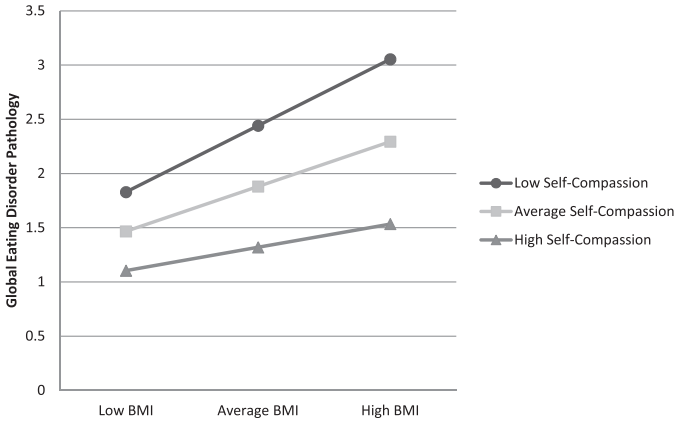

Fig. 1. Regression lines showing the relationship between BMI and global eating disorder pathology as a function of self-compassion level. Estimates for low, average, and high levels of self-compassion and BMI were calculated using standardized scores, where low was 1 *SD* below the mean, average was the mean, and high was 1 *SD* above the mean. The graph illustrates that the positive relationship between BMI and global eating disorder pathology was weaker the higher women's level of self-compassion.

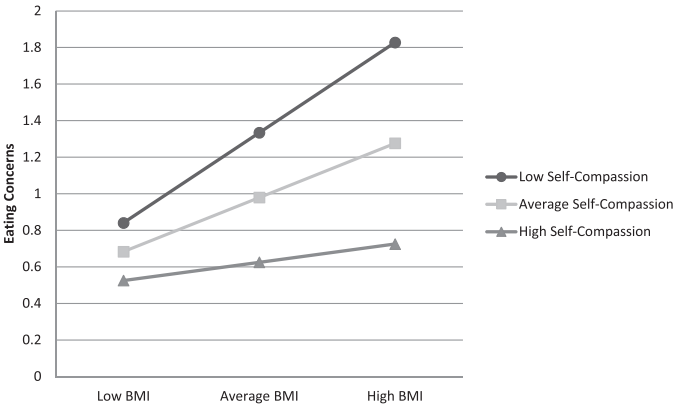

Fig. 3. Regression lines showing the relationship between BMI and eating concerns as a function of self-compassion level. Estimates for low, average, and high levels of self-compassion and BMI were calculated using standardized scores, where low was 1 *SD* below the mean, average was the mean, and high was 1 *SD* above the mean. The graph illustrates that the positive relationship between BMI and eating concerns was weaker the higher women's level of self-compassion.

Dietary restraint. Similar to what was found when predicting global eating disorder pathology, self-esteem contributed negatively to dietary restraint in Step 1 of the hierarchical regression. In Step 2, self-esteem was no longer significant, and self-compassion emerged as a significant negative predictor. BMI, however, was not a significant predictor. Self-compassion × BMI, entered in Step 3, was also not significant, contrary to hypotheses.

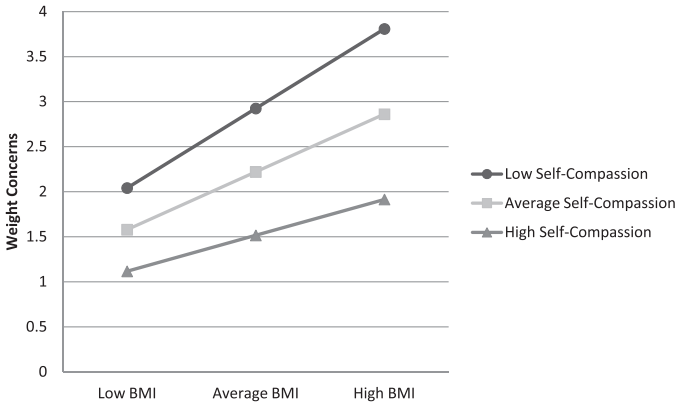

Fig. 2. Regression lines showing the relationship between BMI and weight concerns as a function of self-compassion level. Estimates for low, average, and high levels of self-compassion and BMI were calculated using standardized scores, where low was 1 *SD* below the mean, average was the mean, and high was 1 *SD* above the mean. The graph illustrates that the positive relationship between BMI and weight concerns was weaker the higher women's level of self-compassion.

Body image flexibility. In Step 1, self-esteem negatively predicted body image flexibility. In Step 2, self-esteem was no longer significant, but BMI was a negative predictor and self-compassion was a positive predictor. In Step 3, self-esteem remained non-significant, and self-compassion × BMI was a significant predictor as hypothesized (see Table 2). Simple slopes analysis revealed that BMI's negative contribution to body image flexibility was attenuated the higher women's level of self-compassion (see Table 3). As depicted graphically in Fig. 4, among women with lower or average self-compassion, there was a significant negative relationship between BMI and body image flexibility; however, this relationship was not significant among women with higher self-compassion.

Discussion

The present study examined whether self-compassion moderated the relationship between BMI and indicators of eating disorder pathology and body image in undergraduate women. Controlling for self-esteem, participants' level of self-compassion moderated the strength of the negative relationship between BMI and body image flexibility, and the strength of the positive relationship between BMI and various forms of eating disorder pathology. A higher BMI was related to more eating disorder pathology and less body image flexibility among women with lower and average levels of self-compassion, but was unrelated to these variables among women with higher levels of self-compassion. Results supported our hypotheses and suggest that in young women, the tendency to

Table 2
Hierarchical multiple regressions predicting global eating disorder pathology, weight concerns, shape concerns, eating concerns, dietary restraint, and body image flexibility.

	R^2	ΔR^2	β (SE)	t	p	Squared semi-partial correlation
Global eating disorder pathology, $F(4, 142) = 13.94$, $p < .001$, effect size $r = .30$						
Step 1	0.103					
Self-esteem			−0.403 (0.098)	−4.12	<0.001	0.105
Step 2	0.262	0.159				
Self-esteem			0.005 (0.120)	0.05	0.964	000
BMI			0.373 (0.094)	3.98	<0.001	0.082
Self-compassion			−0.537 (0.118)	−4.55	<0.001	0.107
Step 3	0.282	0.020				
Self-esteem			0.054 (0.121)	0.440	0.659	0.001
Self-compassion × BMI			−0.199 (0.098)	−2.03	0.045	0.021
Weight concern, $F(4, 142) = 17.40$, $p < .001$, effect size $r = .33$						
Step 1	0.096					
Self-esteem			−0.459(0.119)	−3.87	<0.001	0.092
Step 2	0.308	0.212				
Self-esteem			0.070 (0.141)	0.050	0.621	0.001
BMI			0.592 (0.110)	5.38	<0.001	0.140
Self-compassion			−0.676 (0.138)	−4.89	<0.001	0.116
Step 3	0.329	0.021				
Self-esteem			0.129 (0.142)	0.91	0.366	0.004
Self-compassion × BMI			−0.242 (0.115)	−2.11	0.037	0.021
Shape concern, $F(4, 142) = 14.95$, $p < .001$, effect size $r = .31$						
Step 1	0.130					
Self-esteem			−0.549 (0.118)	−4.65	<0.001	0.130
Step 2	0.285	0.155				
Self-esteem			−0.047 (0.145)	−0.33	0.822	0.001
BMI			0.451 (0.113)	3.99	<0.001	0.079
Self-compassion			−0.662 (0.142)	−4.65	<0.001	0.108
Step 3	0.296	0.011				
Self-esteem			−0.004 (0.147)	−0.03	0.979	000
Self-compassion × BMI			−0.179 (0.119)	−1.51	0.134	0.011
Eating concern, $F(4, 142) = 8.58$, $p < .001$, effect size $r = .24$						
Step 1	0.087					
Self-esteem			−0.317 (0.086)	−3.71	<0.001	0.087
Step 2	0.169	0.082				
Self-esteem			−0.068 (0.111)	−0.590	0.555	0.002
BMI			0.251 (0.086)	3.01	0.003	0.052
Self-compassion			−0.321 (0.109)	−3.03	0.004	0.053
Step 3	0.195	0.026				
Self-esteem			−0.022 (0.111)	−0.20	0.845	000
Self-compassion × BMI			−0.191 (0.090)	−2.12	0.036	0.026
Dietary restraint, $F(4, 142) = 5.00$, $p = .001$, effect size $r = .18$						
Step 1	0.038					
Self-esteem			−0.280 (0.118)	−2.38	0.018	0.038
Step 2	0.110	0.072				
Self-esteem			0.068 (0.153)	0.44	0.659	0.001
BMI			0.200 (0.120)	1.68	0.096	0.017
Self-compassion			−0.490 (0.150)	−3.12	0.001	0.066
Step 3	0.123	0.013				
Self-esteem			0.112 (0.155)	0.72	0.473	0.003
Self-compassion × BMI			−0.183 (0.126)	−1.45	0.149	0.013
Body image flexibility, $F(4, 142) = 13.94$, $p < .001$, effect size $r = .30$						
Step 1	0.152					
Self-esteem			0.457 (0.089)	5.12	<0.001	0.152
Step 2	0.261	0.109				
Self-esteem			0.152 (0.112)	1.36	0.178	0.009
BMI			−0.295 (0.087)	−3.41	0.001	0.060
Self-compassion			0.405 (0.110)	3.68	<0.001	0.069
Step 3	0.281	0.020				
Self-esteem			0.101 (0.114)	0.990	0.323	0.005
Self-compassion × BMI			0.191 (0.092)	2.06	0.041	0.021

Note. *F*-values and effect size *r*s were derived from the final model in Step 3 of each hierarchical regression.

treat oneself compassionately in the face of distress and disappointment may help to protect against the greater eating disturbances and lower positive body image that frequently co-occur with a higher BMI.

Preliminary analyses were consistent with past studies (Rø et al., 2012; Stice, 2002; Vartanian & Shaprow, 2008; Wendell et al., 2012) in finding that the heavier women were, the more they struggled with eating disorder pathology, such as weight, shape, and eating concerns, and the less they experienced body image flexibility. That is, they were less accepting of negative body-related thoughts and feelings and had more difficulty persisting at valued life goals and activities during negative body image experiences. Self-compassion was also negatively related to all forms of eating disorder pathology and positively related to body image flexibility, consistent with the view that this self-attitude may be beneficial in the realm of eating and body image (e.g., Ferreira et al., 2011, 2013;

Table 3
Simple slopes analyses for significant self-compassion × BMI Effects.

	β (SE)	t	p
Global eating disorder pathology			
1 *SD* below mean on self-compassion	0.613 (0.150)	4.08	<0.001
Mean self-compassion	0.414 (0.095)	4.35	<0.001
1 *SD* above mean on self-compassion	0.215 (0.122)	1.77	0.079
Weight concerns			
1 *SD* below mean on self-compassion	0.883 (0.176)	5.03	<0.001
Mean self-compassion	0.641 (0.111)	5.77	<0.001
1 *SD* above mean on self-compassion	0.399 (0.142)	2.81	0.006
Eating concerns			
1 *SD* below mean on self-compassion	0.481 (0.138)	3.49	<0.001
Mean self-compassion	0.289 (0.087)	3.32	0.001
1 *SD* above mean on self-compassion	0.098 (0.112)	0.88	0.381
Body image flexibility			
1 *SD* below mean on self-compassion	−0.529 (0.142)	−3.74	<0.001
Mean self-compassion	−0.338 (0.090)	−3.77	<0.001
1 *SD* above mean on self-compassion	−0.147 (0.115)	−1.28	0.202

Schoenefeld & Webb, 2013). Together, these findings supported the empirical basis for our primary research question investigating whether women's level of self-compassion moderates the relationship between BMI and both eating disorder pathology and body image flexibility.

In support of our first hypothesis, self-compassion moderated the relationship between BMI and three of our five indicators of eating pathology. Among individuals who had lower and average levels of self-compassion, having a higher BMI was related to greater global eating disorder pathology, weight concerns, and eating concerns; however, these relationships were either absent or attenuated among women who had high levels of self-compassion. Although further experimental research is needed, findings suggest that a compassionate self-attitude may help to protect women from the unhealthy weight-control practices and body image concerns that correlate with a higher BMI. Findings complement those of Adams and Leary (2007) who found that thinking self-compassionately about arguably indulgent eating mitigated subsequent disinhibited eating in restrained eaters, and those of Breines, Toole, Tu, and Chen (2014) who found that among individuals who ate less than desired in a lab experiment, those who had more appearance-related self-compassion were less likely to have done so for reasons related to weight-gain concern or self-punishment. The present results additionally show that it is not just self-compassion related to one's appearance and eating that contributes to adaptive coping in this domain, but the extent to which individuals generally treat themselves kindly, are mindful of their distress, and view suffering as common to humanity.

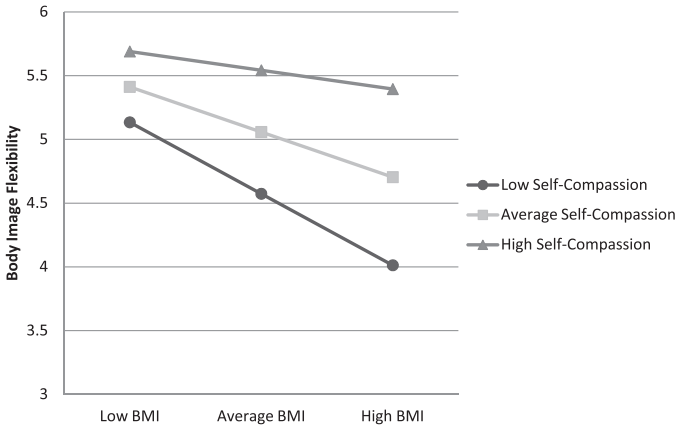

Fig. 4. Regression lines showing the relationship between BMI and body image flexibility as a function of self-compassion level. Estimates for low, average, and high levels of self-compassion and BMI were calculated using standardized scores, where low was 1 *SD* below the mean, average was the mean, and high was 1 *SD* above the mean. The graph illustrates that the negative relationship between BMI and body image flexibility was weaker the higher women's level of self-compassion.

In support of our second hypothesis, self-compassion attenuated the positive relationship between BMI and body image flexibility. Body image flexibility is a relatively new construct, and derives from the Acceptance and Commitment Therapy (ACT) framework, which postulates that suffering is inevitable, and that optimal resilience lies not in the absence of negative experiences but in one's ability to flexibly tolerate negative experiences while simultaneously remaining committed to valued life activities (Hayes, 2004). Body image flexibility, then, does not require that one evaluate one's body positively. Rather, it entails mindfully accepting, and persisting through, disappointments and challenges related to one's body image (Sandoz et al., 2013). Although heavier women in the present and past studies generally show less flexibility in this regard (Wendell et al., 2012), we found that BMI was unrelated to body image flexibility among women who were highly self-compassionate. This result supports ACT's emphasis on helping individuals to develop self-compassion and cultivate a more mindful and accepting attitude toward their struggles and challenges (Neff & Tirch, 2013). Indeed, this therapeutic approach is gaining preliminary support in the treatment of eating disorders (Juarascio, Forman, & Herbert, 2010; Juarascio et al., 2013).

It is interesting to note that although self-esteem showed binary associations with body image flexibility and eating disorder pathology, it did not contribute uniquely to these variables when BMI and self-compassion were simultaneous predictors in analyses. These findings extend a growing body of research showing that self-esteem may not be as strong a protective factor against certain forms of maladaptive coping, or as conducive to certain forms of adaptive coping, as self-compassion (Breines & Chen, 2012; Leary et al., 2007; Neff, Hseih, & Dejitthirat, 2005; Neff et al., 2007). Until now, many prevention programs for eating disorders have focused on building young women's self-esteem and sense of self-worth (McVey, Davis, Tweed, & Shaw, 2004). The present results indicate that fostering self-compassion – especially among young women who are more overweight – might be another important means by which to increase positive body image and protect against unhealthy weight-control practices. Rather than striving to increase self-esteem, which can lead to more unstable forms of self-regard (Crocker & Park, 2004), women may experience more positive body image and healthier eating and weight-related thoughts and behaviors if they focus on approaching disappointments and distress with kindness, mindful acceptance, and the recognition that these are part of the human condition.

Limitations and Future Research

There are several limitations to this study. First, it was correlational and cross-sectional in nature, meaning we cannot make conclusions about causality or directionality. In future research, it would be interesting to manipulate self-compassion in women across a range of BMIs, and to observe whether there are changes in their eating disorder symptoms and body image over time. Together with the present results, findings from such a study would support the use of self-compassion interventions, especially among women with higher BMIs.

Second, this study examined a fairly homogenous sample of young female undergraduate students. It would be important to replicate results in a more diverse sample as it could be, for example, that self-compassion is especially relevant in this subsection of

the population. A third limitation is that the BMI distribution in our sample was negatively skewed. Although a log-transformation rendered the distribution close to normal, it would be wise to replicate the current results in sample whose BMIs are naturally normally distributed. Fourth, all measures relied on self-report. Obtaining objective measures of height and weight, and behavioral measures of eating and body image pathologies, would strengthen our conclusions. No validity questions were embedded in the survey, and therefore we could not screen out participants who were inattentive or randomly responding.

Finally, we focused on elevated BMI as an arguable challenge or stressor for young women, mainly due to its relationship to eating disorder pathology and body image struggles. In future research, it would be interesting to examine other factors that could be considered stressors in the eating and body image domain. One approach might be to examine self-perceptions of weight status, rather than objective weight status. The former might better represent a challenge in this domain given that not all women with higher BMIs struggle with eating and body image. Another approach might be to examine whether self-compassion moderates the relationship between weight stigma and eating disorder pathology and body image. Weight stigma is known to be associated with maladaptive eating- and body-related behaviors and concerns, and it would be useful to know whether a self-compassionate response to these stigmatizing experiences could influence the ways in which women cope.

Conclusions

The large body of research documenting the relationship between a higher BMI and greater disturbances in eating and body image might suggest that there is something inherent about being heavier than average in Western cultures that renders young women vulnerable to eating and body-related difficulties. The message from the present findings, however, is that BMI on its own is not as related to how women function in the realm of body image and eating. Rather, it is the combination of women's BMI and level of self-compassion, with BMI relating to more eating disorder pathology and less positive image at lower but not higher levels of self-compassion. Although future experimental research is necessary, results suggest that eating disorder prevention and health promotion that focus on increasing young women's self-compassion may be an important way to foster adaptive coping across the BMI spectrum.

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