Brief self-compassion meditation training for body image distress in young adult women

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ABSTRACT

Self-compassion interventions may be uniquely suited to address body image distress (BID), as change-based strategies may have limited utility in a cultural context that so highly values appearance. The current study evaluated a version of an Internet-based self-compassion training, which had previously shown promising results, but was limited by high attrition. The intervention period was reduced from three weeks to one week in the present study to improve retention. Eighty undergraduate women endorsing body image concerns were randomized to either self-compassion meditation training or a waitlist control group. Results suggest that brief exposure to the basic tenets of self-compassion holds promise for improving aspects of self-compassion and BID. Attrition was minimal, but compliance with meditation practice instructions during the week was low. Efforts are needed to improve engagement, but this approach has the potential to be an acceptable and cost effective method to reduce BID.

Introduction

Body image concerns are a significant source of distress among young adult women in North America. In a recent study of 1,498 undergraduate women assessed during each of their four years of college, at least 50% reported each year that their body weight or shape had a moderate to extreme influence on their sense of self-worth (Cain, Epler, Steinley, & Sher, 2010). Furthermore, estimates suggest that as many as 29% of college women are "obsessively preoccupied" with their weight (Rozin, Bauer, & Catanese, 2003).

Body image concerns manifest in a number of different ways including, but not limited to, *body dissatisfaction*, which involves "negative subjective evaluations of one's physical body" (Stice & Shaw, 2002, p. 985); *body shame*, or the notion that one is a bad person if one's body fails to meet sociocultural body standards; and *body surveillance*, which refers to continuous body monitoring and preoccupation with concerns about how one's body appears to other people (McKinley & Hyde, 1996). To describe the range of concerns related to body image, we use the term body image distress (BID). Although BID is quite common, its impact on well-being is far from insignificant. Body dissatisfaction is a well-established risk factor for disordered eating (Stice & Shaw, 2002) and affects quality of life even in the absence of clinically diagnosable eating pathology (Cohen & Petrie, 2005). Indices of BID have been associated with a number of negative mental and physical health outcomes such as eating disorder symptoms (e.g., Kroon Van Diest & Perez, 2013), depression (e.g., Jackson et al., 2014), social anxiety (e.g., Dakanalis et al., 2014), and low physical health related quality of life (Wilson, Latner, & Hayashi, 2013).

Reviews of the literature suggest that BID remains fairly resistant to many current interventions and prevention programs (e.g., Pearson, Follette, & Hayes, 2012; Yager & O'Dea, 2008). A variety of interventions to reduce body dissatisfaction have been tested, but results have been modest and maintenance of effects has not been well established (Yager & O'Dea, 2008). One hypothesis is that improvement from primarily change-based strategies may be difficult to maintain over time given the pervasiveness of cultural messages promoting thinness and other standards of beauty (e.g., youthfulness) that are inherently difficult to sustain. Given the persistent high levels of BID, particularly among adolescent girls and young adult women, and the associated negative mental and physical health outcomes, new approaches to address BID warrant exploration.

Self-compassion training (Neff & Germer, 2013) is an acceptance-based approach, which has recently been proposed as

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an alternative to change-based strategies to reduce body image distress (Albertson, Neff, & Dill-Shackleford, 2014). Self-compassion has been a fundamental component of Buddhist teachings for centuries, but has only relatively recently become a focus of scientific study. The hypothesized value of self-compassion stems from the assumption that it is more beneficial to approach imperfections with care and kindness than with harsh self-criticism (Gilbert & Procter, 2006; Neff, 2004). Within Neff's model (2003b), self-compassion includes three interconnected elements: *mindfulness*, *self-kindness*, and *common humanity*. The *mindfulness* element promotes a non-judgmental awareness and acceptance of one's thoughts and emotions (i.e., one must notice one's suffering in order to respond to it compassionately). Neff emphasizes that this awareness must be balanced, such that painful feelings are neither ignored nor exaggerated. The *self-kindness* element promotes giving oneself care and understanding (especially when confronted with personal short-comings, failures, and perceived flaws), as opposed to harsh judgment or criticism. The *common humanity* element relates to acknowledging that imperfections are part of being human and that flaws and inadequacies make one more (rather than less) connected to others (Neff, 2003a).

Self-compassion has been proposed to be particularly well suited to address conditions that are driven by shame, self-criticism, or perfectionism (Gilbert & Procter, 2006), characteristics that are likely to cause and/or maintain body image distress. For many women, self-critical thinking and judgment arise when their body (or appearance more generally) fails to meet a certain ideal. Harsh self-criticism amplifies or prolongs the negative affective state, whereas self-compassion is designed to buffer an individual from the associated suffering by promoting acceptance of imperfection. Self-compassion is included as a component in many compassion training programs that have been developed for non-clinical populations, but typically the greater focus in those programs has been on developing compassion for others. Only a few programs uniquely target self-compassion in clinical and non-clinical populations (e.g., Compassionate Mind Training, Gilbert, 2009; Compassion-Focused Therapy, Gilbert, 2010; Mindful Self-Compassion, Neff & Germer, 2013).

Self-compassion may be particularly helpful in addressing body image distress because it promotes a more accepting and kind attitude toward one's flaws, which include physical flaws (Albertson et al., 2014). This accepting stance would run counter to body dissatisfaction, body surveillance, and body shame. Current research supports the notion that self-compassion is negatively associated with these and other indices of BID (see Breines, Toole, Tu, & Chen, 2014; Kelly, Vimalakanthan, & Miller, 2014; Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011). Individuals higher in self-compassion have been found to report lower body shame, body surveillance, and thin-ideal internalization (Daye, Webb, & Jafari, 2014; Ferreira, Pinto-Gouveia, & Duarte, 2013; Liss & Erchull, 2015; Tylka, Russell, & Neal, 2015). Self-compassion has also been found to mediate the relationship between body dissatisfaction and poorer psychological quality of life (Duarte, Ferreira, Trindade, & Pinto-Gouveia, 2015). In addition, self-compassion is hypothesized to foster a more positive body image, and has been reported to be positively associated with measures of body appreciation (Wasylkiw, MacKinnon, & MacLellan, 2012). Recently, self-compassion was found to moderate the negative relationship between body-related threats and body appreciation, suggesting that it may help to maintain positive body image even in the face of body comparison and appearance-contingent self-worth (Homan & Tylka, 2015).

Self-compassion may alleviate body image distress by providing women with a different way of relating to themselves. In a cultural context in which one's value depends in large part on one's physical attractiveness, self-esteem may become dependent on how closely one's appearance conforms to societal beauty standards. Although self-compassion and self-esteem are moderately correlated (Neff, 2003a) and both are sources of "positive self-regard" (Albertson et al., 2014, p. 2), unlike self-esteem, self-compassion is not dependent upon perceived success in valued areas (Crocker & Wolfe, 2001). Because self-compassion promotes caring self-*treatment*, rather than positive self-*evaluation*, it should buffer against the tendency to compare oneself to others or to a certain ideal as a way to assess one's worth. Instead, self-compassion promotes the notion that to be human is to have imperfections, which are accepted rather than criticized (Neff, 2003a).

Self-compassion is therefore hypothesized to have the potential to reduce a range of indices associated with BID. Self-compassion is designed to reduce the individual's distress associated with negative body image, but it may or may not substantially reduce body dissatisfaction per se. The intent of self-compassion training is to reduce the tendency to judge oneself (either positively *or* negatively) and to promote the belief that self-worth transcends appearance and/or performance, better equipping the individual to cope with threats to self-worth as they arise in the future. Thus, self-compassion training may indirectly promote a more positive body image and decrease body dissatisfaction, but the primary target is to make self-worth less contingent upon appearance.

Albertson et al. (2014) developed an Internet-based self-compassion meditation training and reported the results of a randomized-controlled trial examining its effect on body image. Four hundred seventy-nine adult women (ages 18 to 60) with body image concerns volunteered for the trial, but only the 228 participants who completed both the posttest and follow-up assessments were included in the analyses; the only incentive for completing the study was the chance to win a gift card. The high attrition from the initial assessment (48%) limited the conclusions that could be drawn about the intervention's efficacy. Participants randomized to the self-compassion condition received an online link to a different podcast each week, for a total of three weeks, and were asked to listen to one 20-minute podcast daily. Compared to waitlist controls, participants receiving the intervention (who completed the posttest and follow-up) reported significantly greater increases in self-compassion and body appreciation, along with significantly greater decreases in body dissatisfaction, body shame, and appearance-contingent self-worth on both assessments.

In an effort to improve engagement and reduce dropout, the training period for the current study was reduced to one week, and participants received partial course credit for completing each visit. The present study was limited to undergraduate women based on the Albertson et al. (2014) finding that young adult women reported lower self-compassion and higher body image concerns. This age group is particularly vulnerable to BID, yet these women generally underutilize services available to them to address those concerns (Novotney, 2009). Men were not included in this study due to concerns that body image distress may manifest differently in men (e.g., Grossbard, Lee, Neighbors, & Larimer, 2008) and that we would likely be unable to recruit enough men to have adequate power to evaluate potential gender differences.

An initial self-compassion meditation training session was provided in the laboratory to standardize the first exposure and to ensure that participants understood the instructions. We predicted that, compared to waitlist controls, participants assigned to listen to self-compassion podcasts for one week would report greater increases in self-compassion and body appreciation, as well as greater reductions in indices of body image distress. We also hypothesized that within the intervention group, greater meditation practice frequency would be associated with greater increases in self-compassion and body appreciation, and decreases in indices of BID.

Method

Participants

Eighty-seven undergraduate women volunteered for a study recruiting women between the ages of 18 and 25 with body image/appearance concerns. The study was described as an evaluation of the effects of meditation on aspects of psychological well-being. Participants were not told at the outset that the study targeted self-compassion or body image concerns and there was no screening for body image concerns or eating symptoms. The women ranged in age from 18 to 21 ($M = 18.85$, $SD = 0.87$), with a mean body mass index (BMI) of 22.20 ($SD = 3.60$), based on self-reported height and weight. At their initial assessment, seven women reported having a current meditation practice (ranging from less than once per month to four/five days per week); they were excluded from analyses so that the sample would consist only of individuals who were not currently meditating. Baseline descriptions of the sample used for analyses are displayed in Table 1.

Procedure

Participants attended two lab visits approximately 1 week apart and earned partial course credit for completing each assessment. Participants were randomly assigned to either the intervention or waitlist control group at the first visit.

Visit 1. All participants completed the self-report measures on a computer. Participants assigned to the intervention group then listened to the first self-compassion meditation training exercise (a 20-minute compassionate body scan) while in the laboratory in a private room. This initial lab practice was to ensure that participants in the intervention group listened to the initial podcast prior to being asked to listen on their own over the next week. Participants assigned to the waitlist control group were informed that they would receive the meditation training (with no mention of the self-compassion target) during Visit 2.

Following the lab-based training, participants in the intervention group were sent an email each day around mid-morning with a link to a self-compassion meditation training podcast. They were asked to listen to the podcasts on a daily basis for the next week in a quiet and private space, ideally at the same time each day, and at a time when they felt alert (not drowsy). To monitor compliance, the podcasts were embedded into surveys so that the number of times participants opened each podcast could be tracked.

Visit 2. All participants returned to the lab approximately within 6 to 8 days after completing Visit 1 and completed the same questionnaires as administered on Visit 1 (with some modifications to the time frame assessed, as noted below). Those who had been receiving the podcasts were asked to report on their subjective reactions to the self-compassion training. Those initially assigned to the waitlist control condition then completed the initial training exercise in the lab and were provided with access to the practice materials (online podcasts) to use on their own, if interested.

Training exercises. All training exercises were in the form of 20-minute podcasts. The self-compassion meditation exercises were those used by Albertson et al. (2014). Permission to use the exercises was granted by the creator, Kristin Neff, Ph.D. The three exercises included a compassionate body scan (completed first in the lab and then sent to participants the following two days), an affectionate breathing exercise (sent to participants on Days 4 and 5), and a loving-kindness meditation directed toward the body (sent to participants on Days 6 and 7).

Measures

Measures were completed at both Visits 1 and 2, except for BMI, which was only assessed at Visit 1. At Visit 2, measures with standard instructions that indicated a specific time frame (e.g., "over the past four weeks") were amended to assess solely the intervention period (i.e., "over the past week"). Standard instructions that did not specify a time frame were not altered. Measures were presented to all participants in the order in which they are described below. Cronbach's alphas (reported below) were calculated from Visit 1 data.

Body mass index. Body mass index (BMI) was calculated based on self-reported height and weight.

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003a) is a 26-item measure of trait self-compassion. It assesses the three dimensions of self-compassion: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. Participants are asked to indicate how often they typically act in the manner described in each item (e.g., "I try to be loving towards myself when I'm feeling emotional pain") on a 5-point scale (1 = *Almost never*, 5 = *Almost always*). Scale items were averaged to obtain an overall score, with higher scores reflecting greater self-compassion. Evidence of construct validity and test–retest reliability has been reported in a college student population (Neff, 2003b). Cronbach's alpha was .92 in our sample. In keeping with Neff's original (2003b) recommendations, the total score was used in our initial analyses. However, given recent research indicating that the SCS has a two-factor structure (e.g., López et al., 2015), post hoc analyses were conducted examining those factor scores separately. Following the method of López et al. (2015), the positively worded items (i.e., those tapping self-kindness, mindfulness, and common humanity) were summed to form what was labeled the "self-compassion factor," and the negatively worded items (i.e., those tapping self-criticism, over-identification, and isolation) were summed to form what was labeled the "self-criticism factor"; higher scores indicated higher self-compassion and self-criticism respectively. Cronbach's alphas were .87 and .89 for the self-compassion and self-criticism factors, respectively.

Body appreciation. The Body Appreciation Scale (BAS; Avalos, Tylka, & Wood-Barcalow, 2005) is a 13-item measure of positive body image. It asks participants to consider how often they typically feel favorably about their bodies, accept their bodies, treat their bodies with respect (e.g., through healthy behaviors), and maintain a positive body image by rejecting harmful media messages. Items were rated on a 5-point scale (1 = *Never*, 5 = *Always*) and were averaged to obtain an overall score with higher scores reflecting greater body appreciation. Avalos et al. (2005) reported evidence of construct validity, test–retest reliability (over a 3-week period), and internal consistency in samples of undergraduate women. In our sample, Cronbach's alpha was .92.

Self-esteem. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item measure of global trait-level self-esteem. Participants rate their agreement with each item on a 4-point scale (1 = *Strongly agree*, 4 = *Strongly disagree*). Scale items were averaged to obtain an overall score, with higher scores reflecting greater self-esteem. Robins, Hendin, and Trzesniewski (2001) reported evidence of construct validity, test-retest reliability, and internal consistency in an undergraduate sample. Cronbach's alpha was .89 in the present sample.

Table 1
Baseline demographics of the participant sample by group.

	Intervention (n = 40)			Control (n = 40)		
	M	(SD)	Range	M	(SD)	Range
Age	18.75	(0.78)	18–21	18.82	(0.93)	18–21
Body mass index	21.82	(3.73)	17.4–31.8	22.46	(3.71)	17.5–36.0
		n (%)			n (%)	
BMI categories						
Underweight (below 18.5)	8 (20.0)			4 (10.0)		
Normal weight (18.5–24.9)	26 (65.0)			29 (72.5)		
Overweight (25–29.9)	4 (10.0)			4 (10.0)		
Obese (30.0+)	2 (5.0)			3 (7.5)		
Year in school						
Freshman	22 (55.0)			21 (52.5)		
Sophomore	14 (35.0)			13 (32.5)		
Upperclassman	4 (10.0)			6 (15.0)		
Ethnicity						
Hispanic/Latina/Spanish	1 (2.5)			1 (2.5)		
Race						
White/Caucasian	20 (50.0)			25 (62.5)		
Black/African American	5 (12.5)			5 (12.5)		
Asian/Asian American	12 (30.0)			7 (17.5)		
Other	3 (7.5)			3 (7.5)		
History of an eating disorder	2 (5.0)			0 (0.0)		
Current psychological treatment	7 (17.5)			3 (7.5)		
Reason for current treatment						
Eating disorder	1 (2.5)			0 (0.0)		
Anxiety/depression	4 (10.0)			3 (7.5)		
Other	2 (5.0)			0 (0.0)		
Current yoga practice	3 (7.5)			3 (7.5)		
Prior meditation experience[a]	20 (50.0)			16 (40.0)		
Prior meditation frequency						
Less than once/month	12 (30.0)			7 (17.5)		
Once/month	1 (2.5)			5 (12.5)		
2–3 times/month	2 (5.0)			1 (2.5)		
1–5 times/week	3 (7.5)			2 (5.0)		

Note: n = number of participants endorsing each demographic variable, practice, or frequency.

[a] Participants reporting a current meditation practice (n = 7) were excluded from analyses and are not included in this table.

Body surveillance. The Body Surveillance subscale of the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996) is an eight-item subscale of a 21-item measure of objectified body consciousness. Body surveillance measures the extent to which an individual cares more about how her body looks to others and less about how her body feels. Participants are asked to rate their agreement with each item on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*) with a 'NA' option provided for a 'Does not apply' response. Subscale items were averaged to obtain an overall subscale score, with higher scores reflecting higher body surveillance. At Visit 1, the standard instructions of "over the past 4 weeks" were used. To assess the effects of the brief intervention, instructions at Visit 2 asked participants to base their responses on their feelings over the past week. McKinley and Hyde (1996) reported evidence of construct validity and internal consistency in a sample of undergraduate women. Cronbach's alpha was .83 in our sample.

Body shame. Body Shame is an eight-item subscale of the OBCS (see above; McKinley & Hyde, 1996). Body shame measures the extent to which one feels shame when one's body does not conform to sociocultural beauty ideals. Participants are asked to rate their agreement with each item on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*) with a 'NA' option provided for a 'Does not apply' response. Subscale items were averaged to obtain an overall subscale score, with higher scores reflecting higher body shame. At Visit 1, the standard instructions of "over the past 4 weeks" were used and at Visit 2 participants were instructed to base their responses on their feelings over the past week, to assess just the intervention period. Evidence of construct validity and internal

consistency in undergraduate women has been reported (McKinley & Hyde, 1996). Cronbach's alpha was .80 in our sample.

Appearance-contingent self-worth. The Contingencies of Self-Worth Scale-Appearance Subscale (CSW-Appearance; Crocker, Luhtanen, Cooper, & Bouvrette, 2003) is a five-item measure assessing the degree to which self-esteem or self-worth depends on one's perceptions of one's appearance. Participants are asked to rate their agreement with each item on a 7-point scale (1 = *Strongly disagree*, 7 = *Strongly agree*), and items were averaged to obtain an overall score with higher scores indicating greater contingent self-worth based on appearance. Crocker et al. (2003) reported evidence of construct validity, internal consistency, and test-retest reliability in a sample of college students. Cronbach's alpha was .68 in our sample.

Body dissatisfaction. The shortened 16-item version of the Body Shape Questionnaire (BSQ-16A; Evans & Dolan, 1993) was used. The BSQ measures concerns about body shape and body dissatisfaction, in particular the subjective experience of "feeling fat." Participants are asked to rate how often they have been feeling the way each item describes on a 6-point scale (1 = *Never*, 6 = *Always*). Scale items were averaged to obtain an overall score, with higher scores reflecting greater body dissatisfaction. At Visit 1, the standard instructions of "over the past 4 weeks" were used and at Visit 2 participants were instructed to base their responses on their feelings over the past week, to assess just the intervention period. Evans and Dolan (1993) reported evidence of construct validity and internal consistency in a non-clinical sample of young adult women. Cronbach's alpha was .94 in the present sample.

Practice frequency. Guided self-compassion meditations were embedded into surveys that were emailed daily to participants in the self-compassion group between Visits 1 and 2. The survey software automatically recorded the date and time participants opened each meditation, providing an objective measure of practice frequency. Practice frequency was operationalized as the number of times participants opened a guided meditation during the week.

Acceptability. At the conclusion of Visit 2, participants who had been assigned to the intervention group were asked to respond to two open-ended questions designed to assess the acceptability of the intervention. First, they were asked, "Do you think these meditations would be helpful for people with body image/appearance concerns?" and second, "To help us in planning future studies, do you think you would have been willing/able to practice the guided meditations for an additional two weeks?" Responses to these two questions were coded into three categories: yes, no, and maybe/neutral/not sure.

Results

Between-group analyses of variance (ANOVAs) were conducted to determine whether any variables differed significantly by condition at baseline; no differences between the two groups were found, suggesting that randomization was successful in creating equal groups. Table 2 provides pre and post mean scores by group. Means at baseline in the present study were in a similar range for all variables that had been reported on in Albertson et al. (2014): self-compassion, body appreciation, body shame, body dissatisfaction, and appearance-contingent self-worth. Four participants (4.6%; three intervention and one control) withdrew before completing Visit 2. There was no difference between the proportion of dropouts in the intervention group and the control group, $z = 1.03$, $p = .303$. All analyses presented are intent-to-treat. Table 3 provides correlations at baseline. Self-compassion was significantly correlated with all body image variables, but not BMI. All body image variables were significantly correlated with each other and BMI was correlated with all body image variables except body surveillance and appearance-contingent self-worth (ps < .05).

Self-Compassion Scale

A mixed analysis of variance (ANOVA) with one within-subjects variable (time) and one between-subjects variable (group) was run to examine whether change in self-compassion differed between conditions. There was a significant main effect of time for the self-compassion total score, $F(1, 75) = 6.54$, $p = .013$, $\eta p^2 = .08$, indicating that both groups increased from Visit 1 to Visit 2. There was no main effect of group, $F(1, 75) = 0.46$, $p = .501$, $\eta p^2 < .01$, or time by group interaction, $F(1, 75) = 3.11$, $p = .082$, $\eta p^2 = .04$. Because some prior studies assessing the effects of self-compassion inductions have included self-esteem as a covariate (although intervention studies typically have not) we ran the analyses both ways. When self-esteem was included, the main effect of time on the total score was no longer significant and the main effect of group and the group by time interaction remained non-significant.

López et al. (2015) recently showed there were two meaningful SCS factors, so post hoc exploratory two-way mixed ANOVAs were run to evaluate those factor scores.

Self-compassion factor. There was a significant main effect of time on the self-compassion factor score, $F(1, 75) = 4.81$, $p = .031$, $\eta p^2 = .06$, showing that the "positively worded" items of the SCS increased from Visit 1 to Visit 2 for both groups. There was no main effect of group, $F(1, 75) = 2.46$, $p = .121$, $\eta p^2 = .03$, and no interaction between time and group, $F(1, 75) = 0.13$, $p = .714$, $\eta p^2 < .01$. Results

remained the same when self-esteem was entered as a covariate. Within the intervention group, change on the self-compassion factor score was not correlated significantly with change on any body image variable.

Self-criticism factor. There was a significant interaction effect between time and group, indicating that participants in the intervention group reported greater reductions on the "negatively worded" items of the SCS compared to controls, $F(1, 76) = 11.54$, $p = .001$, $\eta p^2 = .13$. There was no main effect of time, $F(1, 76) = 3.30$, $p = .073$, $\eta p^2 = .04$, or group, $F(1, 76) = 0.001$, $p = .969$, $\eta p^2 < .001$. Effects remained the same when self-esteem was entered as a covariate. Follow-up within-group t-tests indicated that the reduction from pre to post was significant for the intervention group, $t(39) = 3.49$, $p = .001$, but not for controls, $t(37) = -1.2$, $p = .237$. Within the intervention group, change in self-criticism factor scores was significantly associated with change in body dissatisfaction, $r(34) = .43$, $p = .012$, body surveillance, $r(37) = .49$, $p = .002$, body shame, $r(34) = .48$, $p = .005$, and appearance-contingent self-worth, $r(37) = .39$, $p = .017$, but not body appreciation, $r(35) = -.26$, $p = .129$.

Body Image Variables

A mixed multivariate analysis of variance (MANOVA) with one within-subjects variable (time) and one between-subjects variable (group) was conducted to test the intervention's effect on the body image variables. There was a main effect of time, $F(5, 60) = 4.27$, $p = .002$, $\eta p^2 = .26$, but no main effect of group, $F(5, 60) = 0.29$, $p = .919$, $\eta p^2 = .02$, or interaction between time and group, $F(5, 60) = 1.84$, $p = .119$, $\eta p^2 = .13$. The five variables related to body image are typically moderately correlated, as they were in this study at baseline, so we had not hypothesized that certain measures would respond differentially to the intervention. However, inspection of the means (see Table 2) indicated that some measures were more affected by the training than others. Therefore, exploratory analyses were run to examine the variables separately and to facilitate comparison with Albertson et al. (2014), in which each variable had been analyzed separately.

Post hoc analyses. A mixed ANOVA with one within-subjects variable (time) and one between-subjects variable (group) was conducted for each BID variable. Three of the variables (body shame, body appreciation, and body dissatisfaction) were significantly correlated with BMI at baseline, so BMI was included as a covariate in those analyses. Of the five variables, three showed a significant interaction effect between time and group, supporting the conclusion that the brief self-compassion training had a specific effect on these variables: body appreciation, $F(1, 73) = 4.09$, $p = .047$, $\eta p^2 = .05$; appearance-contingent self-worth, $F(1, 78) = 4.18$, $p = .044$, $\eta p^2 = .05$; and body surveillance, $F(1, 78) = 5.13$, $p = .026$, $\eta p^2 = .06$. Follow-up within-group t-tests indicated that the pre-post change was significant for all three: body appreciation, $t(37) = -2.15$, $p = .038$; appearance-contingent self-worth, $t(39) = 2.68$, $p = .011$; and body surveillance, $t(39) = 4.07$, $p < .001$. Controls did not change significantly (ps = .714, .926, and .163, respectively). The group by time interaction was not significant for the other two BID variables: body shame and body dissatisfaction (ps = .476 and .230, respectively).

Practice Effects

The mean number of days participants in the intervention group listened to the podcasts (excluding Visit 1) was 1.5 (range: 0–6, $SD = 2.09$). Pearson correlations were used to determine whether practice frequency was associated with pre-post change in any of the study variables. At home meditation practice frequency was not

Table 2
Pre- and post-intervention mean scores by group.

Measure	Intervention group ($n = 40$)		Waitlist control group ($n = 40$)	
	Pre-intervention M (SD)	Post-intervention M (SD)	Pre-intervention M (SD)	Post-intervention M (SD)
SCS Total	2.80 (0.66)	2.95 (0.62)	2.76 (0.59)	2.80 (0.59)
SC Pos	40.68 (8.36)	41.90 (8.21)	37.74 (8.34)	39.33 (7.90)
SC Neg	45.88 (10.87)	42.75 (10.18)	44.05 (8.96)	44.41 (9.20)
BAS	3.35 (0.74)	3.48 (0.80)	3.52 (0.74)	3.50 (0.71)
BSQ	3.22 (1.18)	3.00 (1.30)	3.05 (0.96)	2.94 (0.94)
B Surv	5.32 (1.01)	4.77 (1.07)	5.13 (0.96)	4.98 (0.81)
B Shame	3.39 (1.25)	3.40 (1.23)	3.18 (1.26)	3.25 (1.21)
CSW-A	5.58 (0.87)	5.21 (0.90)	5.30 (0.77)	5.29 (0.77)

Note: SCS Total = Self-Compassion Scale total score; SC Pos = Self-Compassion factor; SC Neg = Self-Criticism factor; BAS = Body Appreciation Scale; BSQ = Body Shape Questionnaire; B Surv = Body Surveillance subscale; B Shame = Body Shame subscale; CSW-A = Contingent Self-Worth Scale-Appearance subscale.

Table 3
Pre-intervention bivariate Pearson correlations between study variables.

Measure	BMI	SCS Total	SC Pos	SC Neg	RSES	BAS	BSQ	B Surv	B Shame
SCS Total	−.10	–							
SC Pos	−.09	.86**	–						
SC Neg	.08	−.90**	−.56**	–					
RSES	−.10	.67**	.53**	−.65**	–				
BAS	−.36**	.54**	.45**	−.50**	.57**	–			
BSQ	.39**	−.33**	−.18	.38**	−.35**	−.73**	–		
B Surv	.15	−.45**	−.37**	.41**	−.27*	−.57**	.53**	–	
B Shame	.32**	−.45**	−.36**	.44**	−.46**	−.58**	.58**	.45**	–
CSW-A	.09	−.25*	−.24*	.20	−.24*	−.36**	.37**	.49**	.48**

Note: N = 80. SCS Total = Self-Compassion Scale total score; SC Pos = Self-Compassion factor; SC Neg = Self-Criticism factor; RSES = Rosenberg Self-Esteem Scale; BAS = Body Appreciation Scale; BSQ = Body Shape Questionnaire; B Surv = Body Surveillance subscale; B Shame = Body Shame subscale; CSW-A = Contingent Self-Worth Scale-Appearance subscale.
* $p < .05$ (2-tailed).
** $p < .01$ (2-tailed).

Table 4
Bivariate Pearson correlations between meditation practice frequency and pre–post-change in dependent variables.

Pre–post difference scores	r
Self-Compassion total	.32
Self-Compassion factor	.29
Self-Criticism factor	−.21
Self-Esteem	.04
Body Appreciation	.01
Body Dissatisfaction	−.18
Body Surveillance	−.16
Body Shame	−.29
CSW-Appearance	.03

Note: n = 40; intervention group only. CSW-Appearance = appearance-contingent self-worth.
All Pearson r values listed are not significant (i.e., all ps > .05).

Table 5
Responses to open-ended questions assessing acceptability.

	Yes % (n)	Uncertain % (n)	No % (n)
Question 1 "Do you think these meditations would be helpful for individuals with body image concerns?"	56% (20)	33% (12)	11% (4)
Question 2 "Would you have been willing/able to practice with the guided meditations for an additional two weeks?"	39% (14)	17% (6)	44% (16)

Note: n = 36; intervention group only.

associated with changes in self-compassion (neither the total score, nor the two factors) or change in any of the body image variables (ps > .05, see Table 4). Pearson correlations were also used to explore whether lower baseline self-compassion or higher body image distress might be associated with greater practice frequency. Baseline body shame was the only variable found to correlate significantly with practice frequency, $r(40) = .33$, $p = .037$, suggesting that individuals with higher body shame at pre-intervention practiced more frequently.

Willingness to engage in at home practice turned out to be a fairly dichotomous variable. Just under half of the intervention participants ($n = 17$, 42.5%) meditated at least once during the week between visits; the mean number of times those participants listened to a podcast was 4.53 ($SD = 1.74$), or about 90 min of practice. Thus, an exploratory analysis was done to determine if those 17 participants improved more than the 23 participants who only heard the initial podcast (compassionate body scan) at Visit 1. Two-way

mixed analyses of variance (ANOVAs) revealed no significant time by group interactions (ps > .05). Participants who practiced outside the lab showed no clear preference (in terms of listening frequency) for any particular meditation podcast.

Acceptability

Thirty-six of the 40 participants initially assigned to the self-compassion training responded to two open-ended questions during Visit 2. Just over half of these participants reported that they thought the intervention would be helpful to others. The proportion of participants who indicated that they had found the intervention to be helpful did not differ between those who had practiced during the week ($n = 17$) and those who had not ($n = 19$), $z = −0.60$, $p = .549$. However, only 39% indicated that they would have been willing to practice for another two weeks (see Table 5).

Discussion

Results of the present study suggest that self-directed exposure to self-compassion training holds promise as a potentially acceptable and cost-effective intervention to address certain components of body image distress. However, alternative methods to make the training more engaging need to be investigated to enhance its appeal to a broader range of individuals who might benefit. The present study was designed to explore whether certain modifications to a self-compassion meditation training intervention (see Albertson et al., 2014) might render it more acceptable to college women, a population that may be particularly in need of BID intervention. The modifications did not increase participant willingness to meditate on their own; about half of the participants only completed the 20-minute compassionate body scan meditation provided at the first lab visit. Nonetheless, those participants returned for the post-assessment and benefitted on average as much as those who had done further practice during the week. Thus, perhaps even very brief exposure to taking a compassionate orientation toward one's body (ranging from about 20 to 90 min in this study) is sufficient to induce measurable changes in thinking, feeling, and/or behavior, such that practice frequency may not mediate changes in BID.

Overall, the findings from the present study support the conclusion that self-compassion training can impact aspects of self-compassion and BID. We did not observe significant improvement on (total) self-compassion scores following training, as was reported by Albertson et al. (2014), perhaps as a result of lower power due to our smaller sample size. However, exploratory analyses showed specific improvement on one factor of the total score ("self-criticism") following training. Factor scores had not yet been proposed at the time that Albertson et al. (2014) was conducted, so we do not know if the negatively worded ("self-criticism") items may have been driving the effect found for the total score in that study. The positively worded ("self-compassion") items showed a non-specific response, increasing in both the intervention and wait-list group, suggesting that those items may be more susceptible to demand characteristics.

With regard to body image, the present study first analyzed all variables together in a MANOVA to reduce the chance of Type I error; no difference in pre-post change was detected between study groups. There was significant pre-post change in body image across both groups though, suggesting that demand characteristics may have been at play. Inspection of the means suggested that exploratory post hoc analyses (equivalent to those reported in Albertson et al., 2014) would be useful. Consistent with the prior study, these analyses indicated that intervention participants showed significantly greater pre-post change on body appreciation and appearance-contingent self-worth (as well as body surveillance) compared to controls. In contrast to Albertson et al. (2014), we did not observe significantly greater reductions in body shame or body dissatisfaction following training, perhaps due to the reduced exposure to the meditations or lower power, as discussed earlier. However, very brief exposure to a self-compassionate orientation to one's body appears to be sufficient to start changing aspects of body image.

Although the effects of the self-compassion training in the present study were fairly modest, the fact that such a brief intervention outperformed a waitlist control indicated that the effects were not simply due to retesting or the passage of time. A waitlist control does not rule out expectancy effects, but it was noteworthy that the effects were specific to certain aspects of self-compassion and BID. Notably, the two BID indices that showed the greatest change in this study (appearance-contingent self-worth and body surveillance) were the two that in theory should be most directly targeted by self-compassion. Self-compassion is thought to foster beliefs that self-worth is intrinsic and not based on performance or personal characteristics (including physical appearance; Neff & Vonk, 2009). Reducing appearance-contingent self-worth may be particularly important for long-term maintenance of BID improvement, given that the typically unattainable standards of beauty promoted by Western media may prevent most women from ever being completely satisfied with their appearance.

In contrast, self-compassion training does not appear to directly target body dissatisfaction; rather, it promotes a different way of responding to one's imperfections. Thus, it is not entirely surprising that this brief intervention did not affect satisfaction with one's body. The intervention did, however, impact body appreciation, a measure that is highly inversely correlated with body dissatisfaction. This measure is clearly not simply tapping body satisfaction, however, given its different response to the training. Body appreciation was the most strongly correlated with self-compassion at baseline, yet the training seemed to foster an even more positive attitude toward the body. This is perhaps not surprising, as body appreciation by definition involves respect for and acceptance of one's body and thus appears to be a self-compassionate way of relating to one's body. We had hypothesized that self-compassion training would reduce body shame, but perhaps the length of the intervention was not sufficient to produce measurable change in this indicator of BID; research suggests that body shame may be particularly resistant to change (Swan & Andrews, 2003).

Future research is needed to identify potential mechanisms through which the practice of self-compassion may reduce BID. Exploratory analyses indicated that change in the "self-criticism" factor, but not the "self-compassion" factor, was associated with change in all body image variables except body appreciation. Perhaps reductions in the tendency to harshly criticize oneself and to over identify with and feel isolated by one's distress underlie observed decreases in negative body image. Consistent with the positive psychology movement's assertion that reducing illness does not necessarily enhance wellness (Gable & Haidt, 2005), reducing self-criticism may not have been sufficient to produce improvement in positive body image (e.g., body appreciation). Meditation practice effects were not evident in the present study or in Albertson et al. (2014); however, due to the methodological limitations noted in each study, further investigation is needed before any conclusions about practice can be drawn.

In its present form, the self-compassion training was only able to engage about half of those who volunteered for it. A number of participants indicated that it was difficult to find time to meditate each day or that the guided meditations were too long. Another possibility to consider is that a substantial proportion of young women with BID may actively resist the primary message of self-compassion, despite wanting relief from their BID. Qualitative comments reported by participants indicated quite varied responses to the self-compassion message. For example, one participant commented, "*This meditation. . .helps change our internal negative thoughts to more positive, loving, and comforting thoughts in order to find more self acceptance of our body.*" In contrast, other participants seemed to actively resist the principles of self-compassion. For instance, one participant wrote, "*I know I must work to achieve the level of fitness I want. . .I must not ease my perception of my body, and must continue to be hard on myself to actually achieve good results.*" The belief that one must be "hard" on oneself to reach desired goals is not uncommon and may reflect some fear of giving oneself compassion (see Gilbert, McEwan, Matos, & Rivis, 2010). Fears of self-compassion may need to be addressed at the outset of intervention to improve engagement and willingness to practice.

Motivation to engage in self-compassion training might be greater, and the training might be more beneficial, for women with higher levels of distress who are actively seeking help. The current

sample was not treatment seeking and only moderately distressed on average. In this study, initial levels of body shame were associated with practice frequency, but more research is needed to investigate the characteristics of individuals who would find the practice engaging and who would practice on their own. Future research might benefit from identifying ways to boost acceptability and compliance (e.g., by shortening the daily meditations). Other efforts to increase engagement may need to be considered (e.g., having participants meditate in a group with post-meditation discussion) to determine methods that are most suitable for college students.

The present study has a number of strengths including objective tracking of meditation frequency, standardization of initial exposure to self-compassion, and a high rate of return for the post-intervention assessment. We utilized more conservative intent-to-treat analyses, allowing for greater generalization of the findings. Several limitations were also noted. It was not possible to ascertain whether participants who opened the meditations actually completed them, or if they engaged with the meditations in a non-distracting environment as had been requested. Furthermore, participants in the control group were not specifically asked to refrain from starting a meditation practice during the week between visits. Additionally, since we utilized a waitlist as opposed to an active control group, further work is needed to compare self-compassion training to established interventions for body image, such as mirror exposure (e.g., Delinsky & Wilson, 2006) or cognitive restructuring (e.g., Cash, 2008), to determine whether self-compassion confers similar benefits, or perhaps a different pattern of benefits. The present study did not include a follow-up assessment because we sought first to determine if a briefer intervention could reduce attrition and still be efficacious. Much more work needs to be done to establish the amount of exposure and length of training that may be needed to create sustainable clinically significant effects.

To the best of our knowledge, this study was the first to examine the effect of self-compassion meditation training on body image distress specifically in a sample of college women. Our findings suggest that even very brief exposure to the concepts of self-compassion impacts important indices of BID. This acceptance-based approach to targeting BID seems to appeal to a substantial subset of undergraduate women; however, further efforts are needed to determine how to make this approach more acceptable and engaging for a larger proportion of this population. Against incessant cultural messages promoting unrealistic or unattainable standards of beauty, self-compassion may provide welcome respite and a healthier way of relating to oneself. The meditation podcasts used in this study are freely accessible online, so this type of intervention has the potential to reach large numbers of women, to improve well-being, and perhaps even to prevent some of the problems that stem from body image distress, such as disordered eating, self-harm, anxiety, and depression.

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