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Effects of Brief Self-Compassion Meditation Training on Body Image Distress in Young Adult Females: a Pilot Study

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Effects of Brief Self-Compassion Meditation Training on Body Image Distress in Young Adult Females: a Pilot Study

By

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B.A., University of California, Berkeley, 2012

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An abstract of
A thesis submitted to the Faculty of the
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Abstract

Effects of Brief Self-Compassion Meditation Training on Body Image Distress in Young Adult Females: a Pilot Study

By Aubrey M. Toole

Body image distress (BID) is highly prevalent among women from Western cultures. Interventions to increase self-compassion may be uniquely suited to address BID, since change-based strategies may have limited utility in a cultural context that so highly values appearance. Albertson, Neff and Dill-Schackleford (2014) recently demonstrated the superiority of a three-week online self-compassion meditation training compared to a waitlist control condition in reducing negative body image. The present study sought to extend these findings in a sample of young adult females (ages 18 to 21) with body image concerns. This study used a more tightly controlled laboratory-based paradigm, objective measures of meditation frequency, and a shorter intervention period. Participants were randomized to either a brief (one week) self-compassion meditation training condition (n= 45) or to a waitlist control group (n= 42). Consistent with hypotheses, self-compassion training led to significantly greater reductions in body image distress and increases in body appreciation compared to the control condition, even though compliance with daily meditation instructions was low. These results suggest that even brief exposure to the basic tenets of self-compassion regarding body image may hold promise as an approach for individuals experiencing some body image distress, who may be unlikely to seek more intensive intervention to address those concerns.

Key Words: self-compassion, meditation, body image

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Effects of Brief Self-Compassion Meditation Training on Body Image Distress in Young Adult Females: a Pilot Study

Body image concerns are a significant source of distress among American women. In a recent study of 1,498 undergraduate women who were assessed during each of their four years of college, at least 50% reported each year that their body weight or shape influences their sense of self-worth (Cain, Epler, Steinley & Sher, 2010). It has been estimated that up to 88 percent of healthy-weight college women want to be thinner (Raudenbush & Zellner, 1997) and levels of body dissatisfaction in women appear to persist across the lifespan (Tiggemann & Lynch, 2001). Body image issues are so pervasive in Western cultures that they have been termed "normative discontent" (Rodin, Silberstein & Striegel-Moore, 1985; Striegel-Moore & Franko, 2002).

Body image simply refers to the internal representation of one's physical appearance. Body image concerns manifest in a number of different ways. Body *dissatisfaction* involves "negative subjective evaluations of one's physical body" (Stice & Shaw, 2002, p.985) and body *shame* refers to the notion that one is a bad person if one's body fails to meet sociocultural body standards (McKinley, 2006). Body shame is an aspect of objectified body consciousness, or viewing one's body as if from the outside, as an object to be appraised or judged by others (Fredrickson & Roberts, 1997). This construct also includes body *surveillance*, which involves continuous body monitoring and preoccupation with concerns about how one's body appears to other people (McKinley, 1999; McKinley & Hyde, 1996). To describe the range of concerns related to body image (e.g., body dissatisfaction, body shame, body surveillance, etc.), we use the term body image distress (BID; see Brown, Toole & Craighead, in preparation). Although the term body image *disturbance* has been commonly used in the literature, we

prefer the label of *distress,* as the high normative value placed on managing ones' appearance (Jarry & Cash, 2011) makes it difficult to determine what should be considered "disturbed."

Although common, the impact of body image distress is far from insignificant. Body dissatisfaction is thought to be the biggest risk factor for disordered eating (Stice & Shaw, 2002), and is associated with dysfunctional eating and exercise behaviors (Anton, Perri, & Riley, 2000; Neumark- Sztainer, Paxton, Hannan, Haines, & Story, 2006). In fact, the core psychopathology of eating disorders, according to the transdiagnostic cognitive-behavioral model, is considered to be an "overevaluation of weight, shape, and their control," which occurs when self-worth is judged primarily or exclusively on the basis of one's body shape or weight (Fairburn, Cooper, Shafran, & Wilson, 2008). Even in the absence of clinically diagnosable eating pathology, BID is a concern; research suggests that most college women (e.g., 90%) do not satisfy diagnostic criteria for eating disorders, but experience comparable body image distress (Cohen & Petrie, 2005). Furthermore, BID has been associated with a number of other negative mental and physical health outcomes such as depression (Grabe, Hyde, & Lindberg, 2007; Johnson & Wardle, 2005; Szymanski & Henning 2007), social anxiety (Cash & Fleming, 2002), poorer quality of life (Ganem, Heer & Morera, 2009), problems with sexual functioning (Wiederman, 2002), low self-esteem (Cash & Pruzinsky, 2002; Grossbard, Lee, Neighbors & Larimer, 2009), lower levels of physical activity (Neumark- Sztianer et al., 2006), and problems with smoking cessation (King et al. 2005).

Given the high rates of body image distress particularly among women in Western cultures, and the associated negative mental and physical health outcomes, new

approaches to the treatment and prevention of BID warrant exploration. Such exploration is particularly important given that body image distress has been found to be resistant to many interventions (Pearson, Follette, & Hayes, 2012). Some programs have indirectly aimed to reduce BID in the service of eating disorder prevention, but have not been able to demonstrate clinically significant improvements in body image. For example, empirical support for school-based psychoeducation and self-esteem building programs has been consistently weak (Mussell, Binford & Fulkerson, 2000; Steiner-Adair et al., 2002). Other programs have aimed to challenge socio-cultural body ideals, but have not been able to show maintenance of gains over time (Sapia, 2001). More promising are dissonance-based interventions (as reviewed by Stice, Shaw, Becker & Rohde, 2008), which aim to prevent eating disorder pathology by reducing internalization of the thin-ideal. Yet, gains produced by these programs also tend to diminish over time. Improvements from these more change-based strategies may be difficult to maintain given the pervasiveness of cultural messages promoting thinness and other standards of beauty. Self-compassion (Neff, 2003b), a more acceptance-based approach associated with psychological health and well-being (Neff, 2011), promotes a more balanced emotional response to negative thoughts about the self (Leary, Tate, Adams, Allen, & Hancock, 2007) and may provide a novel method for reducing body image distress and promoting a healthier body image.

Self-Compassion

Self-compassion has been a fundamental component of Buddhist teachings for centuries, but has only relatively recently become a focus of scientific study. Since Kristin Neff, Ph.D., a prominent figure in this field of research, provided an

operationalization of self-compassion and measurement instrument, the body of literature has continued to grow (Neff, 2003a, 2003b). Over the past decade, research on self-compassion has consistently linked the construct with psychological health (see Barnard & Curry, 2011 for a review). For instance, higher levels of self-compassion have been associated with greater positive emotion and emotional resilience (Neff, 2003a; Neff, Rude, & Kirkpatrick, 2007) and lower levels of depression and anxiety (Neff, Hseih & Dejitthirat, 2005; Neff, Kirkpatric, & Rude, 2007; Neff, Pisitsungkagarn, & Hseih, 2008).

Put very simply, self-compassion is directing compassion towards oneself. It involves awareness and acceptance of one's flaws and inadequacies along with the understanding that such imperfections are part of being human and that it is more beneficial to approach imperfections with care and kindness rather than harsh self-criticism (Neff, 2004). According to Neff (2003b), self-compassion consists of three interconnected elements: mindfulness, self-kindness and common humanity. Within this framework, mindfulness involves a non-judgmental awareness and acceptance of one's thoughts and emotions. After all, one must notice one's suffering in order to respond to it compassionately. However, Neff (2003b) emphasizes that it is important for this awareness to be balanced, such that painful feelings are neither ignored nor exaggerated. Self-kindness is to give oneself care and understanding (especially when confronted with personal short-comings, failures, and perceived flaws), as opposed to harsh judgment or self-criticism. Common humanity is the acknowledgement that imperfections are part of being human and that flaws and inadequacies make one more (rather than less) connected to others (Neff, 2003a).

As stated previously, research suggests that individuals higher in self-compassion

may be better off psychologically than those who are less self-compassionate. For example, in the first meta-analysis to explore the relationship between self-compassion and psychopathology, a large effect size was found for the negative association between self-compassion and indicators of poor mental health (e.g., depression, anxiety, and stress; MacBeth & Gumley, 2012). Self-compassion has been linked with lower rumination, perfectionism, and fear of failure (Neff, 2003a; Neff et al., 2005), and an enhanced ability to handle difficult experiences such as divorce (Sbarra. Smith & Mehl, 2012), chronic pain (Costa & Pinto-Gouveia, 2011), and academic stress (Neely, Schallert, Mohammed, Roberts & Chen, 2009). Self-compassion has also been associated with beneficial psychological qualities, such as emotional intelligence (Heffernan, Quinn, McNulty & Fitzpatrick, 2010), happiness, optimism, and personal initiative (Neff et al., 2007). It has also been found to mediate the relationship between mindfulness and happiness (Hollis-Walker & Colosimo, 2011)

Recent research suggests that self-compassion is also associated with indicators of physical health. For instance, a study by Breines and colleagues (2014) found that self-compassion is associated with lower levels of stress-induced inflammation. Another recent study found that participants trained in self-compassion showed lower sympathetic, cardiac parasympathetic, and subjective anxiety responses to social evaluative threat, compared to participants with no training (Arch et al., 2014). In addition, self-compassion has also been associated with health-promoting behaviors (e.g., healthy eating, physical exercise, sleep and stress management; Sirois, Kitner & Hirsch, 2014). Thus, the benefits of self-compassion appear to extend beyond the psychological realm to promote greater physical health and resilience.

Self-compassion may be particularly important in times of failure or disappointment, as these are often the times when individuals are most susceptible to self-judgment, shame and self-criticism. For many women, such thinking may arise when their body (or appearance more generally) fails to meet a certain ideal. Harsh self-criticism may amplify or prolong suffering. On the other hand, responding with self-compassion may provide relief and psychological healing. Thus, self-compassion may be particularly well suited to address conditions that are driven by shame, self-criticism or perfectionism (Gilbert & Proctor, 2006), tendencies that likely cause and/or maintain body image distress.

Self-compassion training. To date, a few training programs have been developed to enhance self-compassion in both clinical and non-clinical populations. For example, two therapeutic approaches, Compassion-Focused Therapy (CFT; Gilbert, 2010) and Compassionate Mind Training (CMT; Gilbert, 2009) apply principles of self-compassion to psychotherapy in both individual and group settings. The results from a pilot study of CMT suggest that it may be helpful in reducing depression, shame, and self-criticism in adult men and women participating in a cognitive-behavioral day treatment program (Gilbert & Proctor, 2006). In addition, Neff and Germer (2013) created a self-compassion training program for the general public called Mindful Self-Compassion (MSC). The program consists of eight weekly 2.5-hour meetings, along with a half-day silent meditation retreat. Outside of formal sessions, participants are assigned home practices and 40-minutes of daily self-compassion meditation. A recent randomized controlled trial of the MSC program suggests that it is efficacious in teaching self-compassion skills, enhancing well-being and reducing forms of psychological distress (Neff & Germer,

2013). Interestingly, this study also found some indirect support for the notion that self-compassion can be enhanced through home study. The researchers found that self-compassion increased significantly among waitlist control participants. Upon contacting these participants, they discovered that about 50% had read books on self-compassion or listened to online self-compassion meditation podcasts between study time points. Although this is by no means conclusive evidence for the benefits of the home practices, this finding suggests that this kind of self-training may provide some benefit (Albertson et al., 2014).

A number of other programs have been created to teach both self- and other-focused compassion skills. In these programs, self-compassion is included as a component among other compassion orientations, such as fostering compassion for others or receiving compassion from others. For example, Cognitively-Based Compassion Training (CBCT) was developed at Emory University for use with non-clinical and at-risk groups. Initial findings suggest that CBCT may reduce anxiety in foster care adolescents (Reddy et al., 2013) and may generate improvements in immune responses to psychosocial stressors in healthy adults (Pace et al., 2009). Another educational program, Compassion Cultivation Training (CCT), was developed at Stanford University for use with non-clinical adult populations (Jinpa, 2010). Preliminary findings suggest that CCT enhances self-compassion and compassion for others (Jazaieri et al., 2012) and is associated with increases in happiness and mindfulness, as well as decreases in worry and emotional suppression (Jazaieri et al., 2014).

Additional research is needed to better understand the effects of these programs and to identify specific mechanisms, yet initial results are promising. These findings

suggest that compassion-training programs boost compassion for oneself and others, and lead to improvements in indicators of psychological and physical health. However, these programs are time-consuming and costly for participants, and require substantial administrative support. Other training approaches that minimize these burdens are clearly needed to extend the benefits of these approaches to more individuals, especially those with limited time and/or financial resources. Neff and Germer's (2013) proposition that self-compassion was enhanced in their waitlist control participants due to home study warrants further investigation. Initial support for the notion that self-directed self-compassion training produces beneficial effects has been found by Albertson and colleagues (2014, discussed below) and has implications for more widespread dissemination.

Self-Compassion for Body Image Distress

Self-compassion may be helpful in addressing body image distress because it promotes a more accepting and kind attitude towards one's flaws, including physical flaws. When thoughts about perceived body flaws arise, self-compassion may help people keep negative emotions in perspective rather than progressing into a downward spiral of self-critical thinking, and it may help individuals to treat themselves with care and tenderness rather than harsh condemnation. Self-compassion may also help women recognize that most women experience some degree of distress related to their body image, and that having appearance imperfections has the potential to make one feel more connected to rather than isolated from others.

Self-compassion runs counter to body dissatisfaction, objectification, and associated feelings of shame. Rather than fighting against and being critical of one's

physical appearance (the crux of body dissatisfaction), self-compassion promotes acceptance of one's body in the present moment. With regard to body objectification, because self-compassion involves the understanding that flaws make one *more* (rather than less) human, it may reduce the tendency to dehumanize oneself by objectifying ones own body. More specifically, self-compassion should reduce preoccupation with concerns about how one's body appears to other people (i.e., body surveillance) through its enhancement of mindfulness and focus on self-care. For example, a self-compassionate individual should be more likely to select clothing based on how it *feels* compared to how it *looks*.

Beyond reducing the adverse effects of body dissatisfaction, shame and surveillance, self-compassion may strengthen women's appreciation of their bodies (Ferreira, Pinto-Gouveia & Duarte, 2013). Body appreciation involves acceptance and respect for one's body independent of weight, shape, and perceived flaws, and it has been associated with greater optimism and life satisfaction (Avalos, Tylka, & Wood-Barcalow, 2005). Since self-compassion has also been associated with these positive mental states (e.g., Neff et al., 2007), as well as gratitude (Breen, Kashdan, Lenser & Fincham, 2010), it may also bolster appreciation and respect for one's body. Such appreciation may further buffer individuals against body image distress.

Another way in which self-compassion might help alleviate body image distress is by providing women with a different way of relating to themselves. From an early age, females in Western cultures often learn (through explicit or implicit messages) that one's value depends in large part on one's physical attractiveness. Thus, self-esteem may become dependent on how closely one's appearance conforms to societal beauty

standards. In contrast, it has been suggested that self-compassion allows individuals to feel good about themselves free from the need to self-judge or self-evaluate (Neff & Vonk, 2009). 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) self-compassion is not dependent upon perceived success in valued areas, such as appearance (Crocker & Wolfe, 2001). Because self-compassion involves caring self-treatment, rather than positive or negative self-evaluation, it does not involve comparing oneself to others or to a certain body/appearance ideal in order to assess one's worth. Instead, it emphasizes that to be human is to have imperfections, which are accepted rather than criticized (Neff, 2003a). Thus, self-compassion may reduce adherence to societal standards of beauty and buffer against distress when one's body fails to conform to them, thereby reducing contingent self-worth based on appearance and associated body surveillance, shame and dissatisfaction.

Correlational research. Only in recent years have empirical studies been published exploring the relationship between self-compassion and body image, spanning a range of mostly female populations. The bulk of this research has been correlational in nature and has not experimentally manipulated self-compassion. This growing body of literature suggests that self-compassion is significantly negatively associated with body image distress. For example, Wasylkiw, MacKinnon & MacLellan (2012) found that in college women, higher levels of self-compassion predicted lower body image concerns, eating guilt, and body preoccupation. In female high school athletes, self-compassion was found to be negatively correlated with body shame and dissatisfaction, objectified body consciousness, and anxiety about appearance evaluations from others (Mosewich,

Kowalski, Sabiston, Sedgwick & Tracy, 2011). Similar results were obtained in another study in which higher levels of self-compassion were found to predict lower anxiety about appearance evaluation in women (Magnus, Kowalski, & McHugh, 2010). In all of these studies, self-compassion explained unique portions of variance beyond self-esteem.

Self-compassion has also been found to play both mediating and moderating roles in the relationship between body image distress and psychological health. For example, among undergraduate females, self-compassion was found to attenuate the relationship between recollections of restrictive or critical caregiver eating messages (i.e., reprimands for failing to limit dietary intake) and body shame and surveillance (Daye, Webb & Jafari, 2014). Self-compassion has also been found to moderate the positive association between BMI and eating pathology in college women, as well as the negative association between BMI and body image flexibility (i.e., the acceptance of negative body image experiences; Kelly, Vimalakanthan & Miller, 2014). Furthermore, self-compassion was found to moderate the relationship between body satisfaction and self-esteem in a sample of female undergraduates in Thailand (Pisitsungkagarn, Taephant & Attasaranya, 2014).

Beyond body image distress, self-compassion may also protect against disordered eating in both clinical and non-clinical groups. For example, in a sample composed of women with and without eating disorders, self-compassion was negatively associated with external shame (i.e., perceived negative judgments from others) and eating pathology. In the group of women without eating disorders, self-compassion was found to partially mediate the relationship between drive for thinness and external shame. In the group of women with eating disorders, self-compassion fully mediated this association, and also partially mediated the association between body dissatisfaction and drive for

thinness (Ferreira et al., 2013). In another sample of women with eating disorders, greater gains in self-compassion early in treatment were found to predict more rapid decreases in feelings of shame, which were in turn associated with faster reductions in eating disorder symptomology (Kelly, Carter & Borairi, 2014).

Using daily diary methodology with a non-clinical sample of undergraduates, Breines, Toole, Tu and Chen (2014) found that on days when participants reported higher levels of appearance related self-compassion (measured by re-wording items of the Self-Compassion Scale to reflect responses to negative appearance related thoughts or feelings), they also reported lower levels of disordered eating. In a subsequent lab-based study, these same researchers found that participants who responded to a perceived body flaw with higher levels of self-compassion later scored significantly lower on body shame and anticipated disordered eating. Additionally, among participants who demonstrated restrained eating on a lab-based eating measure, higher appearance-related self-compassion was associated with lower weight-gain concern and self-punishment motives for eating restraint (Breines et al., 2014). Also among undergraduates, self-compassion has been negatively associated with binge eating severity (Webb & Forman, 2013), and positively associated with intuitive eating, an eating approach thought to be more adaptive and healthy (Schoenefeld & Webb, 2013).

Taken together, the results from this body of research suggest that self-compassion is associated with a more positive body image and healthier eating practices, and is negatively associated with BID and eating pathology. Furthermore, it appears that individuals most at risk for BID and associated problems may have more difficulty with self-compassion than those less vulnerable. Although the correlational nature of these

studies prohibits causal inferences, the results provide preliminary evidence to suggest that increasing self-compassion may help to buffer against body image distress and disordered eating.

Empirical research. To the best of our knowledge, only one study to date has experimentally examined the effect of a self-compassion intervention on body image distress. Albertson and colleagues (2014) conducted an Internet-based randomized-controlled trial (RCT) to examine the effect of brief self-compassion meditation training on body image. Participants were 228 adult women with body image concerns (from an original sample of 479) recruited from the Internet who completed posttest and follow-up assessments. Study advertisements were posted on a number of websites, and invited women with body image concerns to participate in a meditation study. The Internet sites included sites that provide information about body image, disordered eating and eating disorders, as well as social media websites (e.g., Facebook, Twitter, LinkedIn, etc.). Information about the study was also emailed to listserves dealing with body image and/or eating disorders, and posted to social media groups for therapists to refer potential participants to the study. The incentive for completing the study was the chance to win a gift card (four $25 and one $100). Participants were primarily Caucasian and ranged in age from 18 to 60 with a mean of 37 and a standard deviation between 1.3 and 1.4. Interestingly, age was correlated with baseline self-compassion and all but one body image variable assessed, with older participants on average indicating higher levels of self-compassion and lower body image concerns. BMI data was not reported.

Participants were randomized to an intervention or waitlist control group. The women assigned to the self-compassion intervention condition received an online link to

a different podcast each week, for a total of three weeks. They were instructed to listen to each 20-minute podcast daily. The podcasts contained one of three guided meditations: a compassionate body scan, an affectionate breathing exercise, and a variant of a loving-kindness meditation. Compared to the wait-list control group, following three weeks of self-compassion training participants in the self-compassion condition indicated significantly greater *increases* in self-compassion and body appreciation, along with significantly greater *decreases* in body dissatisfaction, body shame and contingent self-worth based on appearance. These gains were maintained at three-month follow-up.

This study is noteworthy as it is the first RCT to investigate the effect of self-compassion on body image. Furthermore, the Internet-based intervention delivery approach has implications for widespread dissemination. However, certain limitations were acknowledged by the authors, including the use of a waitlist (as opposed to an active) control group, the reliance on self-report to assess how often participants actually meditated, low racial and ethnic diversity, and the high attrition rates. Despite these limitations, the results suggest that self-compassion training may help to allay body image distress among those willing to complete such training.

Mindfulness training and BID. Although Albertson et al. (2014) is the only experimental study to have investigated the impact of a self-compassion intervention on body image concerns, some research has examined the effect of mindfulness training specifically on aspects of BID. This is worth noting, given that mindfulness is one of the three elements of self-compassion. In one recent study, participants who listened to a mindfulness training tape while trying on a bathing suit subsequently reported less body dissatisfaction compared to participants who tried on bathing suits in silence (Adams et

al., 2013). Mirror exposure, a common treatment for BID and eating disorders that emphasizes non-judgment and mindfulness of present emotional experience, has been found to reduce body dissatisfaction and weight and shape concerns (Delinsky & Wilson, 2006). Mindfulness is a core component of two evidence-based psychotherapies, Acceptance and Commitment therapy (ACT) and Dialectical Behavior Therapy (DBT), which have been found to reduce body dissatisfaction (Pearson, Follette & Hayes, 2012) and concerns about body shape and weight (Telch, Agras & Linehan, 2001). Another study found that a mindfulness-based cognitive therapy (MBCT) based eating intervention led to significant reductions in body image concerns compared to a control group (Alberts, Thewissen & Raes, 2012). Similarly, an exploratory study investigating the effect of a mindfulness cognitive behavior therapy group program for women with binge eating problems found significant reductions in body dissatisfaction from pre- to post-treatment (Woolhouse, Knowles & Crafti, 2012).

Self-compassion for disordered eating. Given the aforementioned link between BID and disordered eating, it is also important to note that some research has experimentally examined self-compassion's effect on eating behavior. For instance, Adams and Leary (2007) found that inducing a self-compassionate response (by having a researcher encourage the participant not to be too hard on herself for eating "junk food") reduced distress and led to a healthier pattern of eating following a perceived diet failure in restrained eaters. Another study reported significant improvements in eating disorder symptoms in a treatment program that integrated Compassion-Focused Therapy (Gilbert, 2010) into a standard eating disorder intervention (Gale, Gilbert, Read & Goss, 2014).

Summary

These preliminary findings suggest that training in self-compassion may help to reduce body image distress. Mindfulness, one of the three components of self-compassion, has received the most experimental attention. The additional components of self-kindness and common humanity that are part of self-compassion intervention are hypothesized to provide further benefits. Beyond promoting awareness and non-judgment of body-related thoughts and emotions, self-compassion involves caring self-treatment and a sense of connectedness with others in the face of difficult or painful experiences. These additional layers may be important, as mindfulness heightens awareness of painful feelings, memories, and sensations, while self-compassion may make awareness of these difficult experiences more bearable (Gilbert & Choden, 2013). As Gilbert and Choden note, "compassion transforms the mind, but mindfulness provides the basis and stability for such change" (p. 24). Therefore, self-compassion's three interconnected components may together provide a particularly powerful approach to alleviating body image distress.

The Present Study

The present pilot study sought to extend the findings of Albertson et al. (2014), which demonstrated that a three-week online self-compassion meditation training was superior to a waitlist control condition in reducing negative body image. The current study was designed to pilot a briefer version of that training hypothesized to be more acceptable and more likely to be completed by college females recruited for having body image concerns and willing to participate in a meditation study. Objective measures of meditation practice time were included to determine the degree to which such training would actually be used. This sample was considered to be an appropriate pilot sample for

such an intervention as the college years are a particularly vulnerable period for body image concerns and associated disordered eating and exercise behaviors in women, yet college women generally underutilize services available to them to address these concerns (Cain et al., 2010; Celio et al., 2006; Luce, Crowther, & Pole, 2008; Raudenbush & Zellner, 1997). As noted earlier, Albertson et al. (2014) found age to be significantly positively correlated with baseline self-compassion and body appreciation, and negatively correlated with almost all negative body image variables. Thus, focusing on a younger age group was expected to target those more likely to need and to benefit from self-compassion training for BID. In this study the first self-compassion meditation training session was conducted in the laboratory to standardize the initial exposure to meditation and to ensure that participants understood how to complete the guided meditations on their own during the week. To avoid relying on self-reported estimates of listening frequency, which can be biased or inaccurate, we embedded the daily meditations into survey software, which allowed us to track listening frequency objectively during the week between visits.

Our primary aim was to assess the effect of an abbreviated version of Albertson et al.'s self-compassion training on indicators of BID (namely body dissatisfaction, body shame and surveillance, and contingent self-worth based on appearance), as well as body appreciation in a sample of young adult women with body image concerns. We predicted that, following a week of self-compassion meditation training, participants would show greater reductions in BID and increases in body appreciation compared to participants in the control group. Furthermore, within the intervention group, we predicted that meditation practice frequency (i.e., number of times participants listened to the guided

meditations during the week) would be associated with greater reductions in BID and improvements in body appreciation. To inform future research, we also assessed the acceptability of, and compliance with, this intervention model by examining meditation practice frequency, attrition (whether participants returned for Visit 2), and qualitative feedback obtained at the end of the study.

Method

Participants

Undergraduate women who endorsed concerns about their body image were recruited through the introductory psychology subject pool at Emory University. Although research is beginning to explore body image concerns in men, BID (as it is conceptualized here) affects females at higher rates (Muth & Cash, 1997) and may manifest differently in males (e.g., Grossbard et al. 2009). The present investigation invited females with body image concerns to participate in a study about the effects of meditation on aspects of psychological well-being. All participants received course credit for their participation. Baseline descriptions of the entire participant sample are displayed in Table 1. Participants ranged in age from 18 to 21 (M = 18.85, SD = .87), with a mean body mass index (BMI) of 22.2 (SD = 3.60), based on self-reported height and weight. A total of 57.5% of participants self-identified their race as White/Caucasian, 24.1% endorsed Asian/Asian American, 11.5% endorsed Black/African American, 2.3% endorsed Middle Eastern, Arab, or Arab American, 1.1% endorsed American Indian, Native American or Alaskan Native, and 3.4% endorsed "Other." The majority of participants (49.4%) were in their first year at Emory, while 35.6% were in their second year, 10.3% were in their third year, and 4.6% were in their fourth year. Five participants

(5.7%) reported ever having been diagnosed with a psychiatric disorder and 11 participants (12%) reported currently participating in psychological treatment. Of these 11 participants, treatment ranged from one week to four years and the reason for treatment included anxiety (3.4%), depression (5.7%), disordered eating (1.1%), obsessive-compulsive disorder (1.1%), social anxiety (1.1%) and "emotional needs" (1.1%). Ten participants (11.5%) reported currently practicing yoga on average about one time per week. Seven participants (8%) reported currently meditating, with an average practice frequency of two to three times per month. Only one participant reported practicing meditation more than once per week. Thus, there were no frequent meditators in this sample. A total of 87 participants completed the first study visit and 83 completed the second.

Procedure

Individuals interested in participating in the experiment scheduled their two lab visits online using the subject pool website. Each lab visit took place at the Emory Healthy Eating and Weight Support (HEWS) lab. All participants completed consent forms at the start of their first lab visit.

Visit 1. Upon arrival at the laboratory for the first session, all participants completed brief self-report measures on the computer. Following completion of the pre-intervention measures, participants were randomly assigned to either the intervention group or to a waitlist control group. Following random assignment, participants in the intervention group completed the first self-compassion meditation training exercise (described below) while in the laboratory in a private room. This was to ensure that participants in the intervention group all received the same initial training in self-

compassion, prior to practicing on their own between visits. Those in the control group were told that they would receive their meditation training a week later, during Visit 2.

Following the lab-based training, participants in the intervention group were told they would receive an email each day with a link to a podcast, and were asked to listen to the self-compassion meditation training podcasts on a daily basis for the next week. They were asked to practice in a quiet and private space, ideally at the same time each day, and at a time when they felt most alert (not drowsy). Research assistants presented these instructions verbally to the participants during Visit 1. To monitor participation and to maximize homogeneity of meditation experience, participants were emailed a link to a survey each day around mid-morning. The podcasts were embedded into the surveys, which also tracked participant listening frequency.

Visit 2. Approximately one week (within 6 to 8 days) after completing Visit 1, all participants were scheduled to return to the laboratory. Upon their return, all participants completed the same questionnaires as administered on Visit 1 (with some slight modifications, specified below). Those in the intervention group were additionally asked to report on their subjective reactions to the self-compassion training they received. Participants in the waitlist control condition completed the initial training exercise in the lab and were provided with access to the practice materials (online podcasts) to use on their own in the future, if interested.

Training exercises. All training exercises were in the form of 20-minute podcasts. Participants were instructed to listen to the initial podcast for the full 20 minutes in the laboratory, and to listen to each podcast that was sent to them daily throughout the following week. The self-compassion meditation exercises (described

below) were adapted from Albertson et al. (2014) and are freely accessible to the public via http://self-compassion.org/guided-self-compassion-meditations-mp3.html. Permission to use the guided meditations in this study was also granted by the creator, Kristin Neff, Ph.D.

Exercise 1. Compassionate body scan. Participants listened to this guided meditation in the lab during Visit 1, and were emailed a link to listen to this same meditation on their own the following two days. During this exercise, participants were directed to pay attention to different body parts (starting with the feet and moving upward to the head) and to be non-judgmentally aware of the simple sensations of each part. This exercise is intended to instill a sense of compassion, harmony, and appreciation for the body of the listener (Albertson et al., 2014).

Exercise 2. Affectionate breathing. Participants were emailed a link to this guided meditation on days 4 and 5. First, participants were instructed to tune into their bodies through a quick body scan, and then to take three deep breaths and release any tension. Next listeners were instructed to breath naturally while allowing the mouth to express a half smile and to notice any feelings and emotions. With each inhalation, participants were instructed to breath in affection and kindness for themselves and with each exhalation, to breathe out affection and kindness for others who are also suffering. Participants were asked to appreciate each breath and the soothing qualities it generates (Albertson et al., 2014).

Exercise 3. Lovingkindness meditation (directed toward the body). Participants were emailed a link to this guided meditation on days 6, 7 and 8 (depending on the length of time between Visits 1 and 2). This is a modified version of loving-kindness meditation

(Hoffmann et al., 2011), in which the focus is on experiencing self-compassion for a personal experience of suffering. Participants were first asked to become aware of the present moment, to notice any external sounds, and finally to tune into the breath. Then, participants were asked to think about a personal trait or behavior associated with negative feelings and to permit these feelings to emerge. Participants were then asked to find the physical manifestation of these emotions in the body without trying to change any sensations. Finally, participants were instructed to place both hands over the heart and to silently repeat the following phrases: *May I be safe. May I be peaceful. May I be kind to myself. May I accept myself as I am.* (Albertson et al., 2014).

Measures

All participants completed a set of questionnaires on the computer at the start of Visit 1. With the exception of BMI and self-esteem, which were not hypothesized to change over the course of one week, all measures were re-assessed at the start of Visit 2. Slight modifications were made to the scale instructions of certain measures during Visit 2 (see individual descriptions below). Finally, meditation practice frequency was determined by counting the number of days participants opened the survey links emailed to them and clicked "play" on the guided meditation between Visits 1 and 2.

Body Mass Index. Body Mass Index (BMI) was calculated based on the self-reported height and weight provided by each participant during Visit 1.

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003a) is a 26-item measure of trait self-compassion. It assesses the three main components of self-compassion: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. Participants were asked to indicate how often

they typically act in the manner described in each item on a 5-point scale (1 = *Almost never*, 5 = *Almost always*). An example of an item is, "I try to be loving towards myself when I'm feeling emotional pain." Scale items were averaged to obtain an overall score, with higher scores reflecting greater self-compassion. The scale was internally consistent ($\alpha = .92$; $M = 2.78$, $SD = .63$).

Self-esteem. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item measure of global trait-level self-esteem. During Visit 1, participants were asked to rate their agreement with each item on a 4-point scale (1 = *Strongly agree*, 4 = *Strongly disagree*). An example of an item is, "I feel that I am a person of worth, at least on an equal basis with others." Scale items were averaged to obtain an overall score, with higher scores reflecting higher self-esteem. The scale was internally consistent ($\alpha = .89$; $M = 3.01$, $SD = .53$).

Body dissatisfaction. The shortened 16-item version of the Body Shape Questionnaire (BSQ; Cooper et al., 1987) measures concerns about body shape and body dissatisfaction, in particular the subjective experience of "feeling fat." This version has been approved for use by the scale authors (BSQ-16A; Evans and Dolan 1993). Participants were asked to rate how often they had been feeling the way each statement described on a 6-point scale (1 = *Never*, 6 = *Always*). During Visit 1, participants were asked to base their responses on their feelings over the past four weeks. During Visit 2, participants were asked to base their responses on their feelings over the past week (in between visits). An example of an item is, "Over the past four weeks (or week)…Has being with thin women made you feel self-conscious about your shape?" Scale items were averaged to obtain an overall score, with higher scores reflecting greater body

dissatisfaction. The scale was internally consistent (α = .93; *M* = 3.14, *SD* = 1.07).

Body appreciation. The Body Appreciation Scale (BAS; Avalos et al., 2005) is a 13-item measure of positive body image. It asks participants to consider how often they 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 promoting an unrealistically thin ideal body. An example of an item is, "I engage in healthy behaviors to take care of my body." Items were rated on a 5-point scale (1 = *Never*, 5 = *Always*) and were averaged to obtain an overall score. Higher scores reflect higher body appreciation. The scale was internally consistent (α = .91; *M* = 3.47, *SD* = .73).

Contingent self-worth based on appearance. The Contingencies of Self-Worth Scale – Appearance Subscale (CSW-Appearance; Crocker, Luhtanen, Cooper, & Bouvrette, 2003) is a 5-item measure assessing the degree to which self-esteem or self-worth depends on one's perceptions of one's appearance. An example of an item is, "My sense of self-worth suffers whenever I think I don't look good." Participants were 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. Higher scores reflect higher contingent self-worth based on appearance. Internal consistency fell in the lower end of the acceptable range (α = .67; *M* = 5.42, *SD* = .80).

Body surveillance. The Body Surveillance subscale of the Objectified Body Consciousness Scale (OBCS; McKinley and Hyde, 1996) is an 8-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 were asked to rate their agreement with each item on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*) with an 'NA' option provided for a 'Does not apply' response. During Visit 1, participants were asked to base their responses on the past four weeks. During Visit 2, participants were asked to base their responses on the past week (in between visits). An example of an item is, "Over the past four weeks (or week), I felt that it was more important that my clothes are comfortable than whether they look good on me" (reverse scored). Subscale items were averaged to obtain an overall subscale score, with higher scores reflecting higher body surveillance. The scale was internally consistent ($\alpha = .82$; $M = 5.22$, $SD = .96$).

Body shame. Body Shame is another 8-item subscale of the Objectified Body Consciousness Scale (OBCS, described above; McKinley and Hyde, 1996). Body shame measures the extent to which one feels shame when one's body does not conform to certain ideals. Participants were asked to rate their agreement with each item on a 7-point Likert scale (1 = *Strongly disagree*, 7 = *Strongly agree*) with an 'NA' option provided for a 'Does not apply' response. During Visit 1, participants were asked to base their responses on the past four weeks. During Visit 2, participants were asked to base their responses on the past week (in between visits). An example of an item is, "Over the past four weeks (or week), I felt like I must be a bad person when I didn't look as good as I could." Items were averaged to obtain an overall subscale score, with higher scores reflecting higher body shame. The subscale was internally consistent ($\alpha = .78$; $M = 3.32$, $SD = 1.21$).

Body image distress construct. Because each individual measure collects information about different aspects of body image distress and all were highly correlated

with each other, we created a composite construct for this outcome variable to increase measurement reliability (Kazdin, 2003) and assess body image distress more globally. We converted the scores on the following four measures to a common one to seven scale: the BSQ-16A (Evans and Dolan 1993), the CSW-Appearance subscale (Crocker et al., 2003), and the body shame and body surveillance subscales of the OBCS (McKinley and Hyde, 1996). The BID composite construct was created by averaging the mean scores from these four measures. This construct measures the extent to which participants base their sense of self-worth on their physical appearance and experience body dissatisfaction, shame, and heightened concern with how their bodies look compared with how they feel. Higher scores reflect higher levels of BID. Internal consistency fell within the acceptable range, ($\alpha = .77$; $M = 4.39$, $SD = .83$).

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 began each meditation, providing a more objective and time-sensitive measure of practice frequency compared to post-hoc self-report estimates. Practice frequency was operationalized as the number of times participants listened to the guided meditations during the week.

Acceptability and compliance. At the conclusion of Visit 2, participants were asked to respond to two open-ended questions aimed at understanding the acceptability of the intervention model. First, they were asked, “Do you think these meditations would be helpful for people with body image/appearance concerns?” And secondly, they were asked, “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, to assess acceptability. Compliance was assessed by examining attrition across all participants and meditation practice frequency amongst participants in the self-compassion group.

Statistical Analyses

Statistical analyses were carried out using between-group analyses of variance (ANOVAs) as well as series of 2 (intervention) × 2 (time) repeated measures analyses of covariance (ANCOVAs). Because self-esteem has consistently been found to be correlated with self-compassion in past research, and in the present study was significantly correlated with self-compassion and all body image measures assessed at pre-intervention, it was entered as a covariate in all analyses. BMI was significantly correlated with pre-intervention scores on body appreciation and the overall body image distress construct, as well as the individual measures of body dissatisfaction and body shame, so it was entered as an additional covariate in these analyses. Pearson correlations were used to conduct preliminary analyses and to examine practice effects. All analyses used a .05 significance level and were performed using the software program IBM SPSS Statistics version 22.

Results

Preliminary Analyses

Of the 87 participants enrolled in the study, 45 were randomly assigned to the self-compassion condition, and 42 to a waitlist control group. Data were analyzed for outliers and other abnormalities prior to analysis. Data for one participant was removed

prior to analyses (extreme high BMI outlier). The rate of attrition was low; four participants (4.6%) dropped out of the study before completing Visit 2. Of these dropouts, three were from the self-compassion condition and one was from the control group.

Between-group analyses of variance (ANOVAs) were conducted to determine whether any study variables differed significantly by condition pre-intervention (Visit 1). No mean differences between groups on any study variables were detected (*p*s > .05). At baseline, levels of self-compassion, body appreciation and indicators of BID (i.e., body shame, dissatisfaction, and contingent self-worth based on appearance) were in the same range as Albertson et al. (2014). Bivariate correlations for the total sample (including both intervention and waitlist control groups) were calculated for all study variables assessed during Visit 1. As shown in Table 2, self-compassion was significantly correlated with all body image variables (*p*s < .05). All body image variables were also significantly correlated with each other (*p*s < .05).

To ascertain whether the self-compassion group demonstrated greater reductions in BID and/or improvements in self-compassion and body appreciation, outcomes were analyzed using a series of 2 (intervention) × 2 (time) repeated measures ANCOVAs using baseline self-esteem as a covariate (with BMI as an additional covariate in specified analyses, as indicated below). Results are discussed below and displayed in Table 3, including effect sizes.

Self-Compassion

There was a significant main effect of time on self-compassion, $F(1, 76) = 4.86$, $p = .03$, $\eta p^2 = .06$, suggesting that across both groups self-compassion scores increased

from Visit 1 to Visit 2. Inconsistent with past research (Albertson et al., 2014), there was no significant interaction effect between time and group, indicating that participants in the self-compassion group did not demonstrate greater gains in self-compassion compared to the control group from Visit 1 to Visit 2. This effect remained non-significant when baseline self-esteem was added as a covariate, $F(1, 76) = 1.49$, $p = .23$, $\eta p^2 = .02$.

Body Image Distress

As predicted, after controlling for BMI and baseline self-esteem there was a significant interaction effect between time and group, $F(1, 63) = 4.5$, $p = .038$, $\eta p^2 = .07$, suggesting that participants in the self-compassion group demonstrated greater reductions in the composite BID score from Visit 1 to 2 compared to the control group. Follow-up analyses looking at each of the four scales of the composite measure separately indicated that three subscales showed the same pattern, with body surveillance reaching significance ($p = .02$) and body dissatisfaction and contingent self-worth based on appearance trending in the expected direction and approaching significance ($ps \leq .081$). In contrast, the body shame subscale showed no changes from pre- to post-intervention.

Body Appreciation

Also as hypothesized, after controlling for BMI and baseline self-esteem, there was a significant interaction effect between time and group, $F(1, 71) = 4.42$, $p = .039$, $\eta p^2 = .06$ indicating that participants in the self-compassion group demonstrated greater improvements in body appreciation from Visit 1 to 2 compared to the control group.

Practice Effects

The mean number of days participants in the intervention group listened to the podcasts (including during Visit 1) was 2.53 (range 1-7; *SD* = 2.07). Of participants in the intervention group, 44.44% (n=20) listened to a podcast at least one time during the week between visits. Of these 20 individuals, the mean number of days reported listening to the podcasts was 4.45 (see figure 1 for the distribution of meditation practice frequency). We first used Pearson correlations to determine whether practice frequency was associated with pre-post change in any study variables. Contrary to predictions, meditation practice frequency was not associated with increases in self-compassion or body appreciation, or decreases in BID from Visit 1 to 2 (*p*s > .05). Given that the range of practice frequency was small, we then dichotomized practice frequency to explore the difference between participants who meditated at least once following their initial lab training (n=20), and participants who did not (n=21). One-way ANOVAs were used to investigate whether these two groups differed in their pre-post changes in self-compassion, BID, or body appreciation. No differences in pre-post change in any study variables were detected between these two groups (*p*s > .05). Thus, no practice effects were observed. Post-hoc Pearson correlations were used to ascertain whether higher baseline levels of BID might be associated with greater meditation frequency, but no such association was observed (*p* > .05)

Acceptability and Compliance

To assess the acceptability of this intervention model, as well as participant compliance, we examined participant practice frequency (i.e., number of times participants listened to the guided meditations between visits), attrition (whether

participants returned for Visit 2), and qualitative feedback obtained at the end of Visit 2 from participants in the self-compassion group. As stated above, the mean number of days participants in the intervention group listened to the podcasts (including during Visit 1) was 2.53. Of participants in the intervention group, 44.44% (n=20) listened to a podcast at least one time during the week between visits. Of these 20 individuals, the mean number of days reported listening to the podcasts was 4.45 (see figure 1 for the distribution of meditation practice frequency). Thus, about half of the participants did not comply with the daily meditation instructions. Attrition was low; eighty-three of the 87 participants who completed Visit 1 returned for Visit 2. Of note, participants were incentivized with additional course credit for returning for the second visit; we have no evidence that this many participants would have returned without some incentive.

We then examined qualitative feedback obtained from participants in the self-compassion group at the end of Visit 2. Forty-one participants in the self-compassion group responded to two open-ended questions. First, participants were asked whether they thought the meditations would be helpful for people with body image concerns. Twenty-three (51%) indicated that they felt the meditations would be helpful, five (11%) felt the meditations would *not* be helpful, and 13 (29%) indicated that they were *not sure*, or that they *might* be helpful. Of the 23 participants who felt the meditations would be helpful, 11 (48%) had meditated at least once following their initial lab training. The remaining 12 (52%) who felt the meditations would be helpful had not practiced with the guided meditations after leaving the laboratory. Therefore, participants who felt the meditations would be helpful for body image concerns were not necessarily those who meditated more frequently. Participants were also asked whether they would be willing to

practice the meditations for an additional two weeks. Sixteen participants (35.6%) indicated *yes*, 16 (35.6%) indicated *no*, and nine (20%) indicated that they were *unsure*, or provided modifications to which they would agree (e.g., to practice just one more week, or to do so if the meditations were shortened to 10 minutes per day). Of the 16 participants who would have been willing to practice for an additional two weeks, seven (44%) had done at least one meditation following their initial lab training. The remaining nine (56%) had not meditated on their own at all between visits. Again, participants who were more willing to continue the intervention for another two weeks were not necessarily those who meditated more frequently during the week. Looking at responses across the two acceptability questions, of the 41 participants in the self-compassion group, 11 (27%) answered yes to both questions, indicating that they thought the meditations would be helpful for body image concerns *and* that they would be willing to participate an additional two weeks. Of these participants, only four had meditated outside of the initial lab training.

Discussion

The present pilot study sought to determine the impact of one week of self-compassion meditation training on body image concerns in young adult women. As predicted, participants in the self-compassion condition indicated significantly greater reductions on a composite measure of body image distress and significantly greater gains in body appreciation from pre- to post-intervention, compared to controls. The low compliance with practice instructions and lack of correlation between practice frequency and change in BID suggested that the effects demonstrated may be largely due to the single session of self-compassion training completed at the first visit. These findings are

consistent with past research utilizing a three-week long intervention (Albertson et al., 2014) and suggest that certain benefits of self-compassion meditation may be detected in an even shorter time period. However, observed effect sizes were small compared to the prior study, which may have been due to the shorter length of intervention. Notably, unlike Albertson et al. (2014), self-compassion did not improve. That may also reflect the lower sensitivity of the Self-Compassion Scale (Neff, 2003a) to very short-term change. The results of the present pilot study suggest that brief self-compassion meditation training shows short-term benefit for reducing body image distress and improving body appreciation in young adult females, but the longer-term effects of this intervention are not established.

Body Image Distress

The central aim of the present pilot study was to determine whether self-compassion meditation might reduce body image distress in young adult females. Consistent with hypotheses and prior research (i.e., Albertson et al., 2014), results suggest that self-compassion meditation significantly decreased body image distress. Our body image distress construct was created by averaging indicators of body dissatisfaction, body shame, body surveillance, and contingent self-worth based on appearance. Follow-up analyses examining each of the four scales of the BID composite measure separately indicated that three subscales showed the same pattern as the overall measure.

There are a number of ways in which practicing self-compassion may have helped to reduce BID. There was a trend suggesting that self-compassion reduced body dissatisfaction, or negative subjective judgments of one's body (Stice & Shaw, 2002). Fostering a non-judgmental and kinder stance toward oneself and one's body likely

reduced the tendency toward self-criticism, the crux of body dissatisfaction. In this way, self-compassion may have promoted greater acceptance of the body in the present moment. Additionally, practicing self-compassion meditation led to significant reductions in body surveillance, or the tendency to view one's body as if from the outside, to be scrutinized or compared to others or a certain ideal. Individuals who engage in body surveillance tend to be more concerned about how their bodies look compared to how they feel. The caring self-treatment inherent in the self-kindness aspect of self-compassion is incompatible with this orientation and may buffer against it. Furthermore, by increasing awareness of physical sensations of the body, the mindfulness component of self-compassion may have promoted a more internal view of the body, which might counter body surveillance. The meditations may have also decreased BID by reminding participants of their connectedness with other imperfect humans whose bodies vary in size and shape, yet all deserve compassion. Recognizing this may have reduced the tendency to compare oneself to a narrow beauty ideal, or to feel isolated in one's failure to live up to it. Finally, self-compassion may have reduced BID by decreasing the amount of importance placed on body image. Because self-compassion does not depend on perceived success in valued domains (e.g., appearance), it may promote a greater sense of unconditional self-worth (Neff & Vonk, 2009) independent of physical appearance. Consistent with this notion and prior research, self-compassion training showed a trend toward decreasing contingent self-worth based on appearance. This may be particularly beneficial, given that the typically unattainable standards of beauty promoted by Western media may prevent many women from ever being completely satisfied with their appearance. Reducing the degree to which appearance determines self-worth through

self-compassion practice is therefore likely to improve psychological health and well-being (Overstree & Quinn, 2012; Breines, Crocker & Garcia, 2008).

In contrast to the other three BID subscales, the body shame scale showed no change from pre- to post-intervention. It is possible that the length of intervention was not sufficient to produce measurable changes in this indicator of BID. In fact, past intervention studies that have assessed body shame as an outcome variable have utilized considerably longer intervention time periods (e.g., Albertson et al., 2014; Gilbert & Proctor, 2006). Furthermore, research suggests that body shame may be particularly resistant to change (Swan & Andrews, 2003). Thus, perhaps it takes more time to alter more entrenched body shame than it does to change a more behavioral construct, such as body surveillance.

Body Appreciation

As hypothesized, participants in the self-compassion condition indicated significantly greater improvements in body appreciation compared to controls. Consistent with prior research, this suggests that self-compassion may not only reduce body image distress, but might also foster a more positive body image. This finding seems intuitive, as body appreciation by definition appears to be a self-compassionate way of relating to one's body. It is an indicator of how often participants accept their bodies, treat their bodies with respect, and reject messages promoting unattainable or unrealistic body ideals. These three components map clearly onto the three elements of self-compassion. Theoretically, the non-judgmental awareness cultivated through mindfulness should increase acceptance of one's body. Self-kindness should promote treating one's body with respect. And finally, the essence of common humanity, which involves the

recognition that all humans are imperfect, may help individuals to dismiss messages that endorse narrow or restricted body ideals.

Practice Effects

We hypothesized that the frequency of listening to the guided meditations during the intervention period would impact changes in self-compassion and body image variables. Contrary to hypotheses, frequency of meditation was not associated with changes in self-compassion or any of the body image outcomes assessed. Although surprising, this is somewhat consistent with past research in which frequency of meditation did not influence change in any negative body image outcomes assessed (Albertson et al., 2014). Albertson and colleagues speculated that because their participants meditated between three and four times per week on average, a ceiling effect may have been created. Given that participants in the present study meditated less frequently (and only over the course of one week), and that self-compassion did not change significantly between study visits, that explanation seems unlikely here. Alternatively, Albertson and colleagues propose that perhaps very brief experience with self-compassion is sufficient to induce measurable changes in thinking, feeling and/or behavior. For instance, Adams and Leary (2007) found that dieters showed less distress and a healthier pattern of eating following a single brief self-compassion induction. Our findings would be consistent with this notion that even brief exposure to the concepts of self-compassion can produce observable effects. About half of the participants listened to only one guided self-compassion meditation; however, post-hoc comparison of those participants compared to those who practiced at least once during the week did not show differential effects.

Acceptability and Compliance

Given the pilot nature of this study, we assessed the acceptability of this intervention model among participants as well as participant compliance with study procedures, to inform future research. We examined attrition, meditation frequency, and qualitative feedback obtained at the end of the study from participants in the self-compassion condition. Attrition was low, with only four participants dropping out of the study between Visits 1 and 2. However, participants did have some external motivation to return for the second visit (course credit). Compliance with the instructions to meditate daily on their own was low (an average of two to three times during the week), so it appears that the major benefit of the intervention was derived from the initial laboratory training session, which of note, only involved the compassionate body scan. Given the low compliance with instructions to listen on their own, we have little evidence to suggest that individuals with low motivation for treatment would on average find this training appealing. On the other hand, some participants meditated six or seven times during the week suggesting that there is a subset of college women who would find this training acceptable and beneficial. Given that initial levels of BID were not associated with practice frequency, higher initial distress may not be the variable determining willingness to practice. More research is needed to investigate the characteristics of individuals who would volunteer for self-compassion meditation training without the incentive of course credit.

To further understand variability in meditation frequency and to determine whether the meditations were acceptable to participants, we referred to participant responses to open-ended questions asked at the conclusion of the study. Participants were

first asked whether they thought the meditations would be helpful for individuals with body image concerns. About half of the participants thought the meditations would be helpful, about a third were unsure or felt that they *might* be helpful, and the remaining few felt that they would *not* be helpful. This pattern of responses could be interpreted as some support for the conclusion that more individuals thought that the training could help those in distress, even if those participants were not feeling particularly distressed and/or were not very motivated to spend time practicing.

Some participants seemed to really grasp the self-compassion message and felt strongly that it was helpful. For example, one participant commented, "*... it's all about actively changing the voice inside our heads that says we are not pretty enough, thin enough, smart enough, etc. 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 did not find the meditations helpful and 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. To do that, I realize that I must not ease my perception of my body, and continue to be hard on myself to actually receive good results."* The belief that one must be "hard" on oneself to achieve desired results is not uncommon among individuals from Western cultures, and may reflect some fear of too much self-compassion (Gilbert, McEwan, Matos & Rivis, 2010). Thus, it is possible that the intervention would have been more acceptable to participants had resistances to compassion been addressed at the outset.

Participants were also asked whether they would be willing to participate in a longer training period. We utilized an abbreviated one-week intervention period for the

present pilot study to ascertain whether college students would be willing and able to comply with study procedures. However, for future research we sought to determine whether participants would be open to completing an additional two weeks of training (in line with the procedure of Albertson et al., 2014). A little over a third of participants indicated that they would be willing to practice with the guided meditations for an additional two weeks, while another third reported that they would decline to do so. About a fifth indicated that they were not sure, or suggested modifications to which they would agree (e.g., to do just *one* more week). A number of participants indicated that it was difficult to find time to meditate each day, or that the guided meditations were too long. This may reflect a difference between the participant populations of the present study and prior research. Participants in Albertson et al. (2014) were older on average and were likely more intrinsically motivated to engage in the meditations, as they sought out and participated in the study independently during their spare time. Our participants on the other hand were college students receiving course credit, who showed some interest in meditation and endorsed body image concerns, but may have had less time or motivation to participate. These findings have clear implications for designing self-compassion interventions for this population in the future, as discussed below. Of note, meditation practice frequency did not seem to be related to perceptions of helpfulness or willingness to continue the intervention for another two weeks. In fact, participants who felt the meditations would be helpful for body image concerns and who would have been willing to continue the intervention for two more weeks were slightly more likely *not* to have meditated following their initial lab training. Perhaps those who meditated more

frequently were more aware of the time commitment and thus were more hesitant to commit to continuing.

Strengths, Limitations and Future Directions

The present pilot study has a number of strengths that build upon past research. By embedding daily meditations into survey software, we were able to track listening frequency more objectively without relying on self-reported estimates, which can be biased or inaccurate. Furthermore, by having participants come into the lab to complete their first self-compassion meditation training, we ensured greater standardization of initial experience across participants compared to prior research utilizing an Internet-based design (e.g., Albertson et al., 2014). Another strength of the present study compared to prior research was the low rate of attrition. As Albertson and colleagues (2014) note, Internet-based designs tend to have higher drop-out rates; perhaps the in-person nature of the initial lab session increased participant accountability. Our sample was also more ethnically diverse than that of Albertson et al. (2014), allowing for the possibility that results may be more generalizable across different racial and ethnic groups.

Several limitations were also noted. The use of a wait-list as opposed to an active control group limits the conclusions that may be drawn from the present study. Self-compassion meditation appeared superior to no intervention, but we cannot rule out the possibility of a non-specific or placebo effect. Participants in the self-compassion group may have felt that they were doing something beneficial for themselves, whereas control participants were told that they would have to wait a week before they would receive access to the meditations. Our results do suggest, however, that even brief exposure to the

idea of directing self-compassion toward one's body may have positive effects on body image and therefore future research is warranted. Future studies could consider comparing this intervention to established treatments for body image (e.g., mirror exposure, e.g., Delinsky & Wilson, 2006; or cognitive restructuring, e.g., Cash, 1997) to determine whether self-compassion confers benefits beyond those of conventional methods. However, participants may need to be motivated to reduce BID in order to benefit from any of these interventions. Another notable limitation of the present study is its lack of follow-up assessments. Prior research suggests that improvements in self-compassion and body image may be maintained for three months post-intervention; however, without follow-up data it is not possible to know whether detected effects in the present study were maintained, or possibly even strengthened, over time.

Another limitation of the present study is the relatively low rate of participation in the guided meditations between visits. This makes it difficult to determine whether the observed effects were small because the intervention was not sufficiently efficacious, because participants were not sufficiently motivated to participate, or because it was not acceptable to busy college students, even those motivated to reduce BID. The low rate of participation suggests that, in this population, increasing the duration of intervention may not be useful. Rather, future research might benefit from identifying ways to boost acceptability and compliance. For example, daily meditations might be shortened such that they can be fit in between classes and study time, and simple reminder emails or text messages might be sufficient to promote self-compassionate thinking. Given that some participants reported some resistance to the concept of directing self-compassion towards one's body, future research might address barriers to developing self-compassion at the

outset (e.g., through psychoeducation about the costs of harsh self-criticism or perfectionism). Nevertheless, despite the fact that many participants received very brief exposure to self-compassion, the detected decreases in indicators of body image distress suggest that only a minimal time commitment may be necessary for participants to reap some of the benefits of self-compassion. It is also possible that the degree to which participants engaged with the meditations (i.e., listened attentively, carried the principles of self-compassion with them through the rest of their day, etc.) was more influential than how often they practiced per se. Thus, future research might benefit from assessing or ensuring greater engagement (for example, by having participants meditate in a group or having group discussion about the concepts after meditation).

A few other future directions are worth mentioning. Future research could examine the relevance of this intervention for women with more severe body image distress who might presumably be more motivated to engage in the training. Given that body image distress is strongly associated with disordered eating (Stice & Shaw, 2002), future research could also investigate whether this intervention model might prevent or reduce disordered eating in addition to BID. A more intensive and/or longer intervention would likely be necessary, however, to affect meaningful change in that domain. Also, as only female college-aged students were included in the present study, research that includes different age ranges and both males and females is needed to generalize findings beyond this population. Finally, as Albertson et al. (2014) note, it may be useful to examine other ways of promoting self-compassion in future studies. For example, past research has utilized self-compassionate letter writing (Shapira & Mongrain, 2010) and found that writing just five daily letters to oneself led to decreases in depression for three

months and increases in happiness for six months. Relatedly, compassionate imagery has been employed as a therapeutic technique in Compassion Focused Therapy (Gilbert, 2010). These methods could be modified to more specifically address body image distress, and could serve as an alternative to meditation or a supplement to contemplative practices. It is possible that such methods may be more acceptable in a college-student population.

Conclusion

To the best of our knowledge, this study was the first to examine the effect of self-compassion training on body image distress in college women. The findings from this experiment suggest that even very brief training in self-compassion may help to allay body image distress and promote a more positive body image in young adult women. Screening for women with more severe BID might yield more significant effects, as motivation to practice may moderate effects of self-compassion training. 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. Given that the meditation podcasts used in this study are freely accessible online, this 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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Table 1

Baseline descriptions of the participant sample

	Sample (N = 87)		
	M	*(SD)*	Range
Age	18.85	0.87	18-21
BMI[a]	22.2	3.60	17.4 - 32.3
		N (%)	
Year in School			
Freshman		43 (49.4)	
Sophomore		31 (35.6)	
Junior		9 (10.3)	
Senior		4 (4.6)	
Race			
White/ Caucasian		50 (57.5)	
Black/African American		10 (11.5)	
Asian/Asian American		21 (24.1)	
American Indian, NA, Alaskan Native		1 (1.1)	
Middle Eastern, Arab, Arab American		2 (2.3)	
Other		3 (3.4)	
Diagnostic Status			
None		82 (94.3)	
ED		2 (2.3)	
Anxiety/Depression		2 (2.3)	
ADHD		1 (1.1)	
Current Psychological Treatment		11 (12%)	
Current Yoga Practice		10 (11.5%)	
Current Meditation Practice[b]		7 (8%)	

Note: BMI = Body Mass Index; NA = Native American; ED = Eating Disorder

[a] Excluding extreme BMI outlier (36.04)

[b] Average meditation frequency = 2-3 times per month

Table 2

Pre-intervention bivariate Pearson correlations between study variables

Measure	BMI	SC	BA	BD	B_Surv	B_Shame	SE
SC	-0.083	-	-	-	-	-	-
BA	-.313**	.530**	-	-	-	-	-
BD	.364**	-.318**	-.711**	-	-	-	-
B_Surv	0.153	-.440**	-.577**	.520**	-	-	-
B_Shame	.281**	-.440**	-.541**	.540**	.444**	-	-
SE	0.001	.693**	.536**	-.274*	-.284*	-.426**	-
CSWA	0.053	-.263*	-.362**	.380**	.499**	.453**	-0.220*
BID	.291**	-.487**					-.416**

SC self-compassion, *BA* body appreciation, *BD* body dissatisfaction,B_Surv body surveillance, *B_Shame body shame, SE self-esteem,CSWA contingent self-worth-appearance*

* $p < 0.05$; ** $p < 0.01$ (2-tailed)

Table 3

Pre- and post intervention mean scores by group and intervention effects analyzed with 2 (group) x 2 (time) repeated measures ANCOVAs

Outcome	Self-Compassion Group		Waitlist Control Group		*F*	ηp^2	*p*
	Pre-Intervention M (SD)	Post-Intervention M (SD)	Pre-Intervention M (SD)	Post-Intervention M (SD)			
Self-Compassion	2.81 (.67)	2.92 (.67)	2.76 (.59)	2.82 (.59)	1.49	0.02	0.226
Body Dissatisfaction[a]	3.23 (1.18)	3.09 (1.24)	3.03 (.94)	2.90 (.92)	3.14*	0.04	0.081
Body Shame[a]	3.44 (1.20)	3.46 (1.17)	3.16 (1.23)	3.15 (1.13)	0.62	0.01	0.433
Body Surveillance	5.31 (.97)	4.73 (1.05)	5.12 (.95)	4.92 (.81)	5.51**	0.07	0.021
Body Appreciation[a]	3.40 (.75)	3.50 (.79)	3.56 (.71)	3.57 (.66)	4.42**	0.06	0.039
CSW-Appearance	5.55 (.84)	5.20 (.90)	5.28 (.75)	5.24 (.76)	3.23*	0.04	0.076
BID (construct)[a]	4.49 (.85)	4.32 (.90)	4.28 (.81)	4.18 (.74)	4.51**	0.07	0.038

Note. Self-esteem was included as a covariate in all analyses. [a]BMI was added as an additional covariate in analyses of body appreciation, body dissatisfaction, body shame, and body image distress.

* $p < 0.10$ ** $p < 0.05$

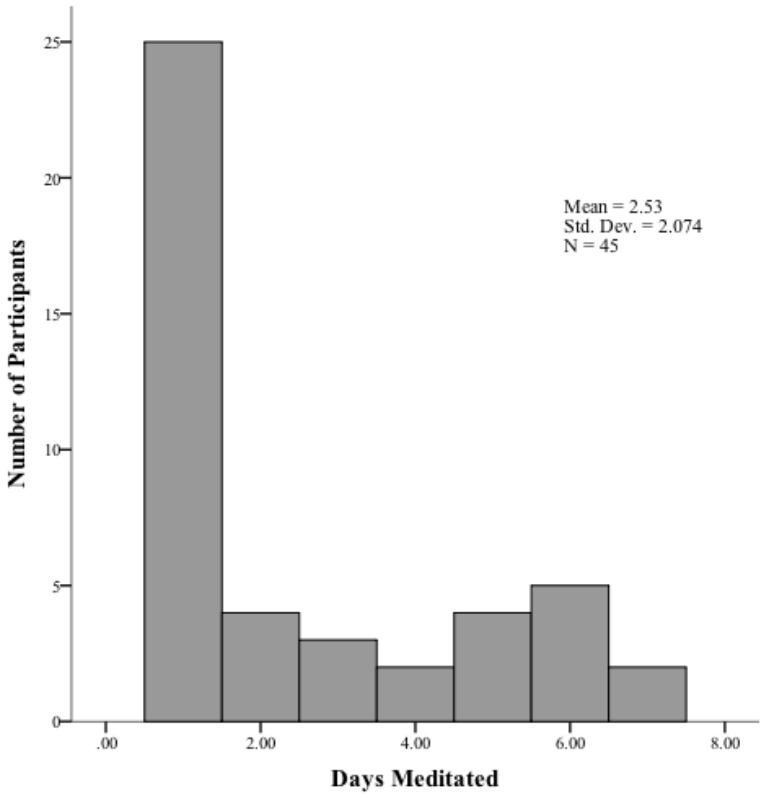

Figure 1. Distribution of the total number of days participants in the self-compassion group participated in a guided meditation. The first day was the initial training in the laboratory.