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Can Positive Mood or Mindfulness Interventions Increase Body Satisfaction?

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CAN POSITIVE MOOD OR MINDFULNESS INTERVENTIONS INCREASE BODY SATISFACTION?

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ABSTRACT

CAN POSITIVE MOOD OR MINDFULNESS INTERVENTIONS INCREASE BODY SATISFACTION?

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Research has indicated that body dysmorphic disorder (BDD) and eating disorder interventions have historically targeted clinically diagnosed individuals. These interventions target specific predicting risk factors such as negative affect and body dissatisfaction. The current study focused on the relationship between negative affect and body dissatisfaction for a nonclinical population. The central questions were (i) whether the posited relationship between negative affect and body dissatisfaction could be replicated for a nonclinical population and (ii) if interventions that target mood would also lead to increases in self-perceived body satisfaction. The efficacy of mood interventions as a means to target body dissatisfaction was investigated. Experiment 1 demonstrated the effectiveness of the negative mood manipulation in decreasing mood and body satisfaction. In contrast, Experiment 2 demonstrated the effectiveness of the positive mood manipulation in increasing mood and body satisfaction. Experiment 3 examined the effectiveness of the proposed body dissatisfaction interventions, a positive mood induction and a body scan mindfulness meditation, in increasing mood and body satisfaction. Positive affect and body satisfaction significantly increased over time following the proposed body dissatisfaction interventions and the control manipulation. Implications of the results and future directions are discussed.

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Introduction

Body dysmorphic disorder (BDD) refers to clinically diagnosed extreme dissatisfaction with physical appearance (Phillips et al., 2010). BDD and eating pathologies are often co-morbid diagnoses and share similar predicting risk factors. Identifying risk factors of these disorders is the first necessary step when implementing intervention programs. Negative affect and body dissatisfaction have been identified as risk factors able to predict BDD and eating disorder development (Stice & Shaw, 2004).

The current study focused on the relationship between negative affect and body dissatisfaction for nonclinical populations. For the purposes of the present study, negative affect is defined as how unhappy an individual feels at the present moment. Additionally, body dissatisfaction can be conceptualized as two independent elements (Gardner, 1996) — a perceptual component (e.g., physical body width estimations) and a subjective attitudinal component (e.g., positive or negative body image cognitions). The measures of body dissatisfaction used in the present study correspond to the attitudinal component of Gardner's conceptualization: how dissatisfied an individual feels about his or her body shape and how dissatisfied an individual feels about his or her body weight.

The central questions were (i) whether the posited relationship between negative affect and body dissatisfaction would be replicated for a nonclinical population (c.f., Haedt-Matt, Zalta, Forbush, & Keel, 2012) and (ii) if interventions that target mood would also lead to increases in self-perceived body satisfaction.

Eating disorder interventions historically target clinically diagnosed individuals (Stice & Shaw, 2004). However, few studies have implemented short-term, practical interventions for a nonclinical population who experience coexisting negative affect and body dissatisfaction. The current study examined the effects of practical interventions (positive mood induction and mindfulness meditation) on negative affect and body dissatisfaction. Positive mood inductions are designed to experimentally increase positive affect (Renner, Shwartz, Peters, & Huibers, 2014); mindfulness is the ability to relinquish thoughts of the future and focus on the present (Adams et al., 2012; Pepping, O'Donovan, Zimmer-Gembeck, & Hanisch, 2015). It was hypothesized that a negative mood induction would increase negative affect and decrease body satisfaction, and a positive mood induction would decrease negative affect and increase body satisfaction. As elaborated on in the following sections, it was also hypothesized that a (body-targeted) mindfulness meditation would produce a larger increase in body satisfaction than (a more generalized) positive mood induction.

Historical Interventions

Stice and Shaw (2004) conducted a meta-analysis to assess the success of various eating disorder interventions. Eating disorder interventions are designed to target specific eating pathology risk factors, such as negative affect and body dissatisfaction, ultimately alleviating eating disorder symptomatology. The researchers compared the interventions based on the following specific program attributes: risk status of participants, participant sex, participant age, program format, number of sessions, program content, and the use of

validated measures. Selective interventions were compared with universal interventions (Stice & Shaw, 2004). Selective interventions were defined as those targeting high-risk participants and universal interventions were defined as programs available to the general population. Furthermore, interactive formatted programs were compared with didactic programs. Interactive programs required participant engagement and participation, as opposed to a traditional didactic program in which the instructor teaches and the participant listens.

Interventions targeting negative affect and body dissatisfaction had the highest success rates when the programs were selected and interactive. Moreover, multiple session interventions were more successful in decreasing body dissatisfaction than single session interventions. It was inconclusive whether the number of sessions had an effect on negative affect. Stice and Shaw (2004) implied that selective interventions are more effective because high-risk individuals are highly motivated to complete all intervention requirements. However, selective interventions may have been more effective than universal interventions because high-risk participants are more likely to exhibit eating disorder symptoms. The current study targeted a broader group – a nonclinical sample – since it is well-established that the increasing pressure to be thin in Western societies encourages body dissatisfaction in more individuals than just those at high risk for developing eating pathologies (Polivy & Herman, 2004).

Although Stice and Shaw (2004) selected interventions for comparison that targeted a larger array of eating pathology risk factors than simply negative affect and

body dissatisfaction, their work is of interest because it indicates a strong relationship between negative affect and body dissatisfaction. Depending on the causal direction of the interrelationships observed, interventions that specifically target one risk factor (e.g., negative affect) may simultaneously reduce other risk factors (e.g., body dissatisfaction).

Negative Affect

Negative affect is positively correlated with body dissatisfaction (Taylor & Cooper, 1992). However, due to the nature of correlational research, it is difficult to draw causal conclusions on the direction of this relationship. Therefore, researchers in the past few decades have experimentally induced negative mood in participants in order to demonstrate the causal relationship between negative mood and body dissatisfaction (Haedt-Matt et al., 2012; Plies & Florin, 1992). For instance, Haedt-Matt et al. (2012) experimentally induced negative mood in normal functioning, nonclinical participants. Body dissatisfaction increased following the negative mood induction, verifying past findings regarding negative affect potentially causing body dissatisfaction. Given that participants were screened for depression, eating pathology, and unusually high levels of body dissatisfaction prior to inclusion in the analysis, the claimed relationship appears robust. The screening results were compared between the experimental and control groups, verifying there were no pre-existing between group differences.

Additionally, Plies and Florin (1992) examined the effect of negative mood on body dissatisfaction; they also experimentally manipulated mood in a sample of individuals who had never been diagnosed with a clinical level eating disorder.

Participants were screened and excluded if they reported a previous clinical diagnosis. The sample was separated into two quasi-experimental groups on the basis of a participant variable that described their eating habits (restrained versus unrestrained eaters). Restrained eaters were those who reported conscious efforts to consume less food and unrestrained eaters were those who reported practicing normal food consumption. The purpose of comparing along this dimension was to examine whether restrained eating is predictive of developing an eating disorder. Restrained eaters are considered to be a subclinical eating disorder population (Birmingham & Beumont, 2004). Body width estimations (the perceptual component of body dissatisfaction) between the two groups were compared. Both groups reported having a larger perceived body width than actual body width following the negative mood induction. Furthermore, the restrained eaters reported a larger discrepancy between actual and perceived body width than the unrestrained eaters. Restrained eaters may have reported more severe body dissatisfaction because of restrained eating's known relationship with eating disorder development. Individuals with clinically diagnosed eating disorders reported higher body dissatisfaction than those without a diagnosis. Even though the restrained eaters were not clinically diagnosed, they illustrated one of the primary symptoms of eating disorders. Therefore, these individuals could potentially benefit from an eating disorder prevention intervention.

Positive Affect

Many studies have demonstrated the positive correlation between negative affect and body dissatisfaction (Haedt-Matt et al., 2012; Plies & Florin, 1992; Taylor & Cooper, 1992). However, fewer studies have directly investigated the relationship between positive mood as a possible intervention for body dissatisfaction. Studies have typically used the positive mood condition as a comparison group, while primarily examining the effects of negative mood on body dissatisfaction (Plies & Florin, 1992; Taylor & Cooper, 1992). The role positive mood directly plays in improving body satisfaction needs to be investigated further. This gap in the literature may be due to a possible intuitive theory that positive and negative mood are inversely related. In other words, because negative mood has been confirmed to cause body dissatisfaction, positive mood may have been assumed to improve body image satisfaction.

To test this idea, Taylor and Cooper (1992) investigated the effects of mood on body dissatisfaction. The effects of positive mood were examined, but the primary purpose of the study was to investigate the possible role depression plays in developing eating disorders. Therefore, the positive mood condition was used as a comparison group in this study. Once again, high levels of negative affect led to increased body dissatisfaction. Alternatively, participants who underwent the positive mood induction did not report a change in body dissatisfaction. Body dissatisfaction referred to dissatisfaction with personal body size and was calculated as the difference between perceived body size and actual body size (the perceptual component of body

dissatisfaction). The nonsignificant results for the positive mood condition may have been due to the operational definition of body dissatisfaction used — individuals demonstrating positive affect may be less concerned with perceived body size. Thus the current study examined the attitudinal component of body dissatisfaction.

Taylor and Cooper's (1992) failure to find a significant increase in body satisfaction for the positive mood condition may have also been a result of a ceiling effect such that participants already reported high levels of body satisfaction prior to the positive mood induction. Renner et al. (2014) primarily investigated the effectiveness of the positive mood induction on positive affect. They conducted a negative mood induction prior to a positive mood induction in both the experimental and control conditions. Participants reported feelings of positivity and optimism following the mood manipulation. Experiment 3 replicated Renner et al.'s (2014) methodology and induced negative mood across all conditions in order to simulate a subclinical population of body dissatisfaction, under the assumption that a negative mood induction would result in high levels of body dissatisfaction. Inducing negative mood prior to a positive mood induction may be necessary to elicit feelings of body dissatisfaction. A positive mood induction could then be used to reverse the negative effects (regarding negative mood and body image cognitions) of a negative mood induction.

Mindfulness

An additional intervention that has been studied in relation to body image is mindfulness. Mindfulness describes a state of mind that focuses on the present moment

in an accepting and nonjudgmental manner (Pepping et al., 2015). Mindfulness training exercises are guided meditations in which individuals listen to a certified mindfulness instructor via a voice recording or in person. Mindfulness participants are often instructed to "quiet the mind and relax the body" (DeUrquiza, 2014, p. 125). Body scans are one type of mindfulness meditation. During a body scan, participants are instructed to bring their attention and awareness to various body parts of their body, one body part at a time. They are instructed to observe and accept the feelings they have in each body part without judgment. After a few moments of observation, the participants are instructed to release any tension they may feel in the observed body part.

Mindfulness meditation exercises have demonstrated positive body satisfaction outcomes and improved mood (Atkinson & Wade, 2012). For example, Atkinson and Wade (2012) identified acceptance training as a valid mindfulness teaching mechanism in which participants were instructed to acknowledge feelings without labeling them negatively. Due to the accepting nature of mindfulness exercises, participants have reported high levels of self-compassion. Acceptance training also requires participants to relinquish negative thoughts, which often leads to improved mood.

Adams et al. (2012) investigated the effects of a mindfulness exercise on body dissatisfaction. Those assigned to the experimental condition were asked to try on a bathing suit while listening to a mindfulness exercise. These participants were instructed to look at themselves in a mirror while eliminating criticizing or judgmental thoughts. Similar to acceptance training, they were prompted to observe negative cognitions

without labeling the observations as “good” or “bad”. Instead, participants were expected to look at themselves in the present moment in an accepting manner. The participants who tried on bathing suits while listening to the guided mindfulness exercise reported increased mindfulness states and did not report an increase in negative affect or body dissatisfaction. However, participants who tried on bathing suits in silence reported increased negative affect and body dissatisfaction. Therefore, mindfulness may mitigate the negative influence negative affect has on body dissatisfaction.

Summary and Hypotheses

The present study was designed under the assumption that negative affect is positively correlated with body dissatisfaction, such that high levels of negative affect result in high levels of body dissatisfaction (Haedt-Matt et al., 2012). Historically, eating disorder interventions help individuals recover from previously diagnosed disorders (Stice & Shaw, 2004). The purpose of the present study was to implement interventions in order to prevent potential future clinical diagnoses. Two body dissatisfaction intervention methods were proposed: a positive mood induction and a body scan mindfulness meditation.

These intervention techniques were designed to target negative cognitions related to body image in a nonclinical sample. Given that we were interested in the relationship of mood and body dissatisfaction for nonclinical populations, the sample was restricted to exclude those participants who may represent clinical populations. Thus exclusion criteria were set for the analyses to focus on these groups (see below).

It was hypothesized that a negative mood induction would increase negative affect and decrease body satisfaction; and a positive mood induction would decrease negative affect and increase body satisfaction (Hypothesis 1). Furthermore, it was hypothesized that a (body-targeted) mindfulness meditation would produce a larger increase in body satisfaction than (a more generalized) positive mood induction (Hypothesis 2). The following sections outline the methods and results pertaining to three experiments on body dissatisfaction.

Experiment 1

Method

Experiment 1 replicated Haedt-Matt et al.'s (2012) negative mood and body dissatisfaction experiment. The measures discussed in this section were adapted from Haedt-Matt et al. (2012). An additional negative mood condition was included in order to determine the most effective method of inducing negative affect while simultaneously inducing body dissatisfaction.

The proposed negative mood induction combined facets of historical negative mood inductions such as reflecting on negative autobiographical memories (Baker & Guttfruend, 1993; Hernandez, Vander Wal, & Spring, 2003). The proposed negative mood induction was designed to personalize the negative statements each individual participant reflected on. A visual component was also added.

Participants. San Jose State University students enrolled in introductory psychology courses completed the experiment in partial fulfillment of a course

requirement (n = 32). One student was excluded from analyses based on a score indicating potential moderate depression on the Beck Depression Inventory. One additional student was excluded from analyses based on a potentially extreme score on the Eating Attitudes Test. The gender distribution of the final sample (21 women, 9 men) was comparably distributed across the three conditions: the Replicated Negative Mood Induction had seven women and three men, the Proposed Negative Mood Induction had eight women and two men, and the Control had six women and four men.

Materials.

Prescreening. Prescreening consisted of four questions (Appendix A). The first was whether or not the participant was 18 or older. Any participant who answered "no" was excluded from further participation. The remaining three questions were: had they ever been diagnosed with depression, anxiety, or other mood disorders; had they ever been diagnosed with an eating disorder; and were they currently taking antidepressants. Any participant who answered "yes" to any of these three questions was excluded from further participation. One potential participant was excluded based on a previously diagnosed psychological disorder.

Beck Depression Inventory (BDI). The BDI is a 21-item questionnaire used to assess non-clinical depression symptomatology (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). The BDI can be used to assess both nonclinical and clinical populations and has alpha coefficients of .81 and .86, respectively, for these populations (Beck, Steer, & Garbin, 1988). Participants choose one of four options for each question. The options

increase in severity from 0 (e.g., *"I do not feel sad"*, Q1) to 3 (e.g., *"I am so sad and unhappy that I can't stand it"*, Q1) for each question. Full scale scores range from 0 to 63. The BDI clinical cutoff score is 20 (potentially indicative of moderate depression). The BDI compared depression symptomatology of the sample between groups.

Eating Attitudes Test-26 (EAT-26). The EAT-26 is a 26-item questionnaire with three subscales that is used to identify potential eating disorders (Garner, Olmsted, Bohr, & Garfinkel, 1982). The EAT-26 has an alpha coefficient for nonclinical populations of .85 and an alpha coefficient for clinical populations of .90 (Gleaves, Pearson, Ambwani, & Morey, 2014). Participants respond to items via a 6-point Likert scale (*"always"* to *"never"*). The three subscales are: dieting (e.g., "*I am terrified about being overweight"*), bulimia and food preoccupation (e.g., "*Find myself preoccupied with food"*), and oral control (e.g., "*Avoid eating when I am hungry"*). The EAT-26 clinical cutoff score is 20, a score often used as part of a larger evaluation as a cue to investigate the possible presence of an eating disorder. The EAT-26 compared eating disorder symptomatology of the sample between groups.

Body Dissatisfaction Scale of the Eating Disorder Inventory (EDI-BD). The EDI-BD is a nine item subscale originally part of the full Eating Disorder Inventory (Garner, Olmsted, & Polivy, 1983). The EDI-BD is used to assess body dissatisfaction in both nonclinical and clinically diagnosed female populations and has alpha coefficients of .91 and .90, respectively, for these populations (Garner, Olmsted, & Polivy, 1983). Participants respond to items such as *"I feel satisfied with the shape of my body," "I think*

my hips are too big," and *"I think that my stomach is just the right size"* using a 6-point Likert scale (*"always"* to *"never"*). The EDI-BD compared baseline body dissatisfaction of the sample between groups.

Visual Analogue Scales (VAS). The VAS were three 100 mm long horizontal lines used to assess the primary outcomes of the study: Mood, Body Shape Satisfaction, and Body Weight Satisfaction (Haedt-Matt et al., 2012). The Mood anchors were *extremely unhappy* (left anchor) and *extremely happy* (right anchor). The Body Shape Satisfaction and Body Weight Satisfaction anchors were *extremely dissatisfied* (left anchor) and *extremely satisfied* (right anchor).

VAS have demonstrated strong test-retest reliability (r = .95; Wewers & Lowe, 1990). Furthermore, the criterion-related validity of the VAS is dependent on the construct in question. For example, the criterion-related validity for measuring pain ranges from .42 to .92 because pain is a multidimensional construct comprised of sensory, affective, and evaluative components. The criterion-related validity for measuring mood ranges from .32 to .70 depending on the verbiage used for the anchors. Wewers and Lowe (1990) suggested using the unidimensional VAS as a measure of solely unidimensional constructs versus multidimensional constructs. Therefore, two unidimensional constructs, Body Shape Satisfaction and Body Weight Satisfaction, of the multidimensional body satisfaction construct were examined.

Replicated Negative Mood Induction. The Replicated Negative Mood Induction was the negative mood induction used in Haedt-Matt et al. (2012). Haedt-Matt et al.

(2012) used a combined mood induction procedure, combining Clark (1983) and Velten's (1968) mood induction procedures. Participants read negative statements to themselves (Velten, 1968) and listen to a 10-minute excerpt from Gabriel Faur Faure's *requiem* (Op. 48, part one, *Introit et Kyrie;* Clark, 1983). Example negative statements were *"I feel ashamed of the things I've done"* and *"I am unpopular among my peers"*. A meta-anlaysis of mood induction procedures demonstrated that combined musical mood inductions (including the Velten + Clark procedures) have demonstrated to be even more effective for inducing a depressed mood state (r = .76; Westermann, Spies, Stahl, & Hesse, 1996).

Proposed Negative Mood Induction. The Proposed Negative Mood Induction was compared to Haedt-Matt et al.'s (2012) negative mood induction on the effectiveness of decreasing positive affect and body satisfaction.

Instructions. Participants assigned to the Proposed Negative Mood Induction were given the following instructions: *Please complete the self statements questionnaire. When you are done, hand the questionnaire to me and I will start the video. When the video finishes, I will hand you a stack of cards. The cards have questions and instructions printed on them. I would like you to read each of the cards and type responses in the word document. You will have ten minutes to complete this task. If you finish early, please elaborate on your responses.*

Self Statements Questionnaire. The participants first completed the 40-item Self Statements Questionnaire (Appendix B). The Self Statements Questionnaire was

created for the present study and was used to determine which statements each individual participant had personally experienced. Example items on the Self Statements Questionnaire include *"have you ever been embarrassed"* and *"have you ever been a victim of discrimination."* Participants respond to the questions by circling *Y* for *"yes"* and *N* for *"no"*.

Visual Component. Following the completion of the Self Statements Questionnaire, participants watched a video for eight minutes. The video was a collection of sad clips from movies found on Youtube (Supercut, 2012).

Negative Autobiographical Memories Component. The researcher sorted cards corresponding to the items on the Self Statements Questionnaire while the participant watched the video clip. For example, the card corresponding to the item *"have you ever been embarrassed"* stated *"describe the time you were embarrassed."* Only the cards corresponding with the items in which the participant responded "yes" were retained. The researcher opened a blank word document and handed the participant a personalized stack of cards when the video finished. Participants responded to the statements on the cards in the word document for 10 minutes.

Control Condition. As Experiment 1 was a replication, the present study used the same Control as that used by Haedt-Matt et al. (2012). Participants read neutral statements to themselves and listen to a 10-minute neutral musical excerpt (Antonin Dvorak's "Slavonic Dances"). Example neutral statements include *"the leaves change color in the fall"* and *"the air is crisp in the mountains"*.

Procedure. Participants signed up for individual experimental time slots for an experiment titled "A Comparison of Mood Intervention Effects on Self Perceptions." Each experimental time slot was made available for one participant at a time. The researcher maintained a neutral affect throughout the experimental session in order to influence the participant as minimally as possible. Participants first completed the screening questionnaire and signed the consent form (Appendix C). Eligible participants completed paper versions of the BDI, EAT-26, EDI-BD, and pre-manipulation set of VAS (i.e., Time 1). Participants were quasi-randomly assigned to one of the three conditions such that the condition assignments were alternated sequentially across participants. The three conditions were: Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control. Following the completion of the questionnaires, the participant completed their assigned mood induction. Participants then completed the post-manipulation set of VAS (i.e., Time 2) and the participant was debriefed.

Results

To examine possible pre-existing group differences across the three manipulations of interest (Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control), three separate one-way ANOVAs compared the pre-manipulation scores on (i) depression symptomatology (BDI), (ii) eating disorder symptomatology (EAT-26), and (iii) unusually high body dissatisfaction (EDI-BD). No pre-existing differences were found (Table 1).

Table 1

Mean depression, eating disorder, and body dissatisfaction scores for Experiment 1 groups.

	Replicated (n = 10)		Proposed (n = 10)		Control (n = 10)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(2, 29)$	p
BDI	10.60	5.21	8.50	5.93	5.70	3.50	2.43	0.11
EAT-26	7.80	5.63	8.50	6.55	6.50	5.23	0.30	0.74
EDI-BD	9.10	5.53	7.30	6.43	5.10	6.64	1.04	0.37

Note. BDI = Beck Depression Inventory, EAT-26 = Eating Attitudes Test-26, EDI-BD = Body Dissatisfaction Scale of the Eating Disorder Inventory.

Analysis Plan. Three separate 2 (Time) X 3 (Condition) mixed ANOVAs were calculated to examine the effect of the mood induction procedures on each of Mood, Body Shape Satisfaction, and Body Weight Satisfaction. The two levels of Time were Time 1 (pre-manipulation) and Time 2 (post-manipulation). The three levels of Condition were: Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control. Both of the negative mood inductions were expected to decrease positive affect and body satisfaction as compared to the control condition.

Mood.

Omnibus ANOVA. There was a significant main effect of Time on Mood such that positive affect decreased from Time 1 to Time 2 across the three conditions, $F(1, 27) = 21.33$, $p < .001$. There was also a significant main effect of Condition on Mood such that the original starting point (pre-manipulation scores) and the differential impact of the mood manipulations (post-manipulation scores) produced a difference in averaged mood

scores across the three conditions, $F(2, 27) = 4.74$, $p = .02$. Both the main effect of Time and the main effect of Condition are best understood in the context of the significant Time by Condition interaction, $F(2, 27) = 7.12$, $p = .003$ (Table 2).

Table 2

Mean pre- (Time 1) and post-manipulation (Time 2) Mood and Body Satisfaction scores for Experiment 1 groups.

	Replicated (n = 10)		Proposed (n = 10)		Control (n = 10)		Time	Condition	Time X Condition
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(1, 27)$	$F(2, 27)$	$F(2, 27)$
Mood							21.33***	4.74*	7.12**
Time 1	68.70	14.86	55.40	13.99	69.40	14.86			
Time 2	40.10	14.65	45.00	17.00	67.50	20.18			
Body Shape							7.64**	.65	7.87**
Time 1	52.90	22.59	49.10	23.76	52.00	19.43			
Time 2	34.40	25.97	43.60	24.68	56.40	17.53			
Body Weight							3.66	.18	7.58**
Time 1	51.40	22.07	51.70	26.28	48.90	24.20			
Time 2	39.30	25.14	49.70	24.53	53.10	24.04			

Note. *p<.05, **p<.01, ***p<.001

Follow-up Comparisons. Additional analyses revealed significant differences in changes in Mood across Time for the experimental conditions grouped together (Replicated Negative Mood Induction + Proposed Negative Mood Induction; average decrease of 19.5) and the Control (decrease of 1.9), $F(1, 28) = 6.64$, $p = .016$. The two experimental conditions also revealed significantly different changes in Mood from each other across Time, $F(1, 18) = 8.24$, $p = .01$, thus indicating the Replicated Negative Mood

Induction (decrease of 28.6) was significantly stronger in decreasing positive affect than the Proposed Negative Mood Induction (decrease of 10.4; Figure 1.1)

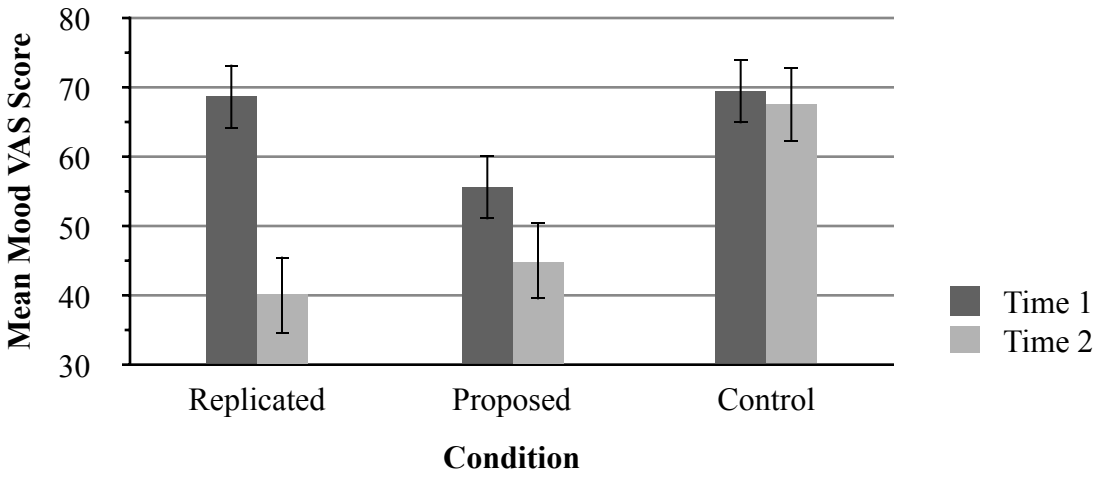

Figure 1.1. Means and standard errors of reported Mood (VAS score) across the three conditions (Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was statistically significant, $F(2, 27) = 7.12$, $p = .003$.

Body Shape Satisfaction.

Omnibus ANOVA. There was a significant main effect of Time on Body Shape Satisfaction such that self-reported body shape satisfaction decreased from Time 1 to Time 2 for all three conditions, $F(1, 27) = 7.64$, $p = .01$. There was not a significant main effect of Condition on Body Shape Satisfaction, $F<1$. There was also a significant Time by Condition interaction, $F(2, 27) = 7.87$, $p = .002$ (Table 2).

Follow-up Comparisons. Additional analyses revealed significant differences in changes in Body Shape Satisfaction across Time for the experimental conditions grouped together (Replicated Negative Mood Induction + Proposed Negative Mood Induction;

average decrease of 12) and the Control condition (increase of 4.4), $F(1, 28) = 9.35$, $p = .005$. The two experimental conditions also revealed significantly different changes in Body Shape Satisfaction from each other across Time, $F(1, 18) = 4.30$, $p = .05$, thus indicating the Replicated Negative Mood Induction (decrease of 18.5) was significantly stronger in decreasing body shape satisfaction than the Proposed Negative Mood Induction (decrease of 5.5; Figure 1.2).

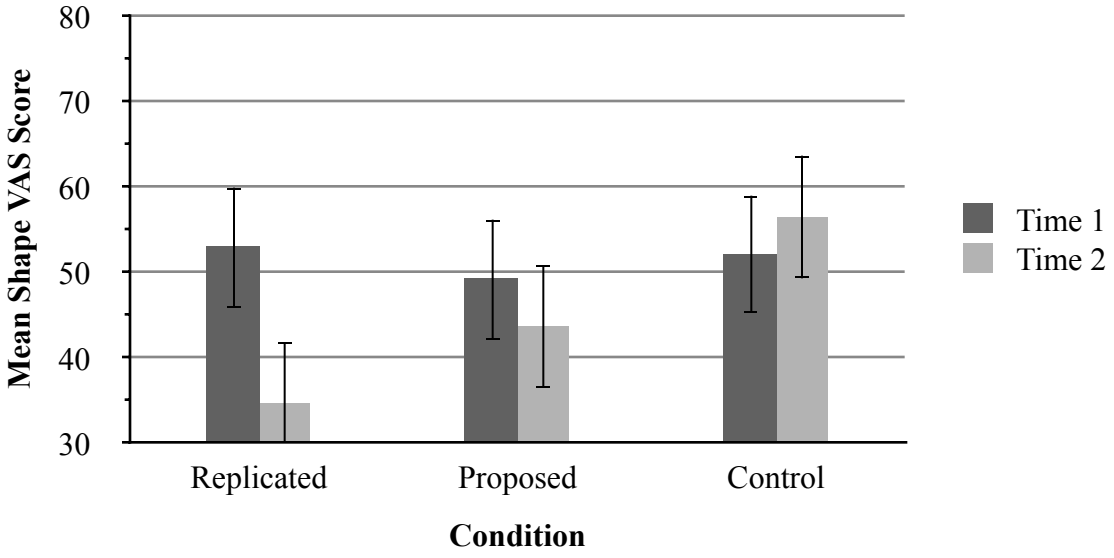

Figure 1.2. Means and standard errors of reported Body Shape Satisfaction (VAS score) across the three conditions (Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was statistically significant, $F(2, 27) = 7.87$, $p = .002$.

Body Weight Satisfaction.

Omnibus ANOVA. There was neither a significant main effect of Time, $F(1, 27) = 3.66$, *n.s.,* nor Condition, $F<1$, on Body Weight Satisfaction. The Time by Condition interaction was significant, $F(2, 27) = 7.58$, $p = .002$ (Table 2).

Follow-up Comparisons. Additional analyses revealed significant differences in changes in Body Weight Satisfaction across Time for the experimental conditions (Replicated Negative Mood Induction + Proposed Negative Mood Induction grouped together; average decrease of 7.05) and the Control (increase of 4.2), $F(1, 28) = 8.09$, $p = .008$. The two experimental conditions also revealed significant differences in changes in Body Weight Satisfaction from each other across Time, $F(1, 18) = 4.75$, $p = .04$, thus indicating the Replicated Negative Mood Induction (decrease of 12.1) was significantly stronger in decreasing body weight satisfaction than the Proposed Negative Mood Induction (decrease of 2; Figure 1.3).

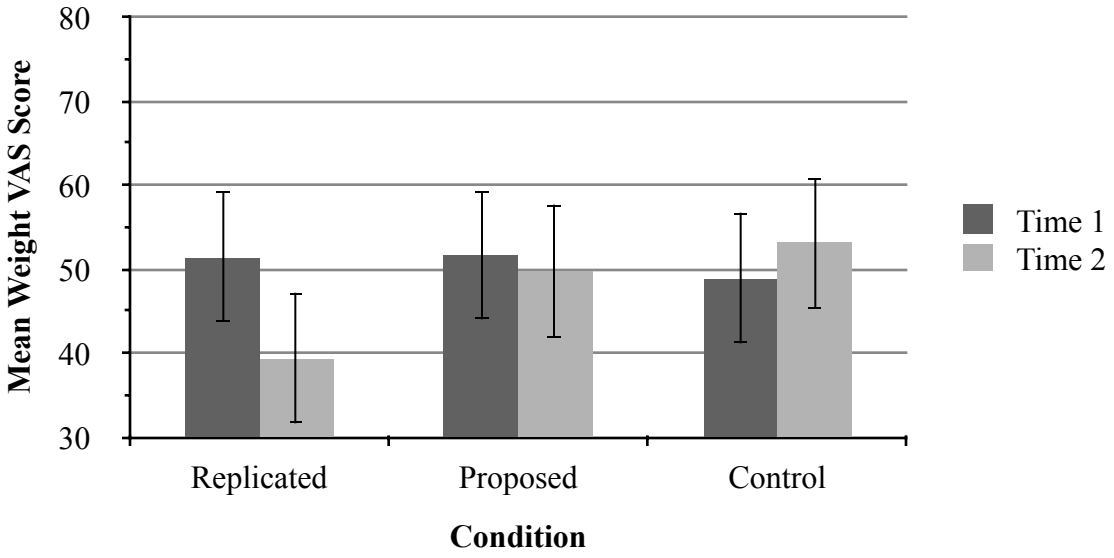

Figure 1.3. Means and standard errors of reported Body Weight Satisfaction (VAS score) across the three conditions (Replicated Negative Mood Induction, Proposed Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was statistically significant, $F(2, 27) = 7.58$, $p = .002$.

Discussion

Experiment 1 replicated previous findings in regards to the relationship between negative affect and body dissatisfaction. Positive affect, body shape satisfaction, and body weight satisfaction significantly decreased following the Replicated Negative Mood Induction. The Replicated Negative Mood Induction (from the present study) produced a comparable (slightly larger) decrease in mood than reported by Haedt-Matt et al. (2012); the Control produced a comparable mild increase in mood. The most important finding from Experiment 1 is that Haedt-Matt et al.'s (2012) original negative mood induction produced a significant decrease in positive mood and was demonstrated to be at least as

effective of a mood induction procedure as the proposed alternate method. Therefore, the Replicated Negative Mood Induction was the Negative Mood Induction used in subsequent experimentation.

Experiment 2

Experiment 1 verified that the negative mood induction procedure was effective in decreasing positive affect and body satisfaction. Prior work indicates that positive mood inductions produce a minimal impact on body satisfaction. Experiment 2 replicated the important features of the design from Experiment 1. Thus, replicating the results for the Replicated Negative Mood Induction versus Control from Experiment 1 for the Mood, Body Shape Satisfaction, and Body Weight Satisfaction variables was expected in Experiment 2. By adding a positive mood condition, the baseline effects of a positive mood induction were established for the experimental design.

Method

Participants. San Jose State University students enrolled in introductory psychology courses completed the experiment in partial fulfillment of a course requirement (n = 30). One student was excluded from analyses based on a potentially extreme score on the Eating Attitudes Test. The gender distribution of the final sample (17 women, 12 men) was comparably distributed across the three conditions: the Positive Mood Induction had nine women and two men, the Negative Mood Induction had four women and five men, and the Control had four women and five men.

Materials. The screening questionnaire used in Experiment 1 was also used in Experiment 2. The BDI, EAT-26, EDI-BD, and VAS used in Experiment 1 were converted from paper questionnaires to online surveys via an online survey generator, Qualtrics. The Replicated Negative Mood Induction from Experiment 1 was used as the Negative Mood Induction in Experiment 2 because the replication was more effective in decreasing positive affect than the proposed alternate method. The Control used in Experiment 1 was also used as the Control in Experiment 2.

Positive Mood Induction. The Positive Mood Induction used in Experiment 2 was the "Best-Possible-Self" task used in Renner et al. (2014). The "Best-Possible-Self" task has been found to reliably induce positive mood and optimism (Renner et al, 2014; Meevissen, Peters, & Alberts, 2011). Participants imagine the ideal version of themselves in the future. Participants write about their ideal selves for 15 minutes on a blank sheet of paper. Following the written portion of the induction, participants engage in a mental imagery task of their best possible selves in the future for five minutes.

Procedure. Experiment 2 extended the results of Experiment 1 by adding a positive mood condition. Haedt-Matt et al.'s (2012) Negative Mood Induction was compared to the Control and a replicated version of Renner et al.'s (2014) Positive Mood Induction. The same procedure used in Experiment 1 was used in Experiment 2, but exchanged the Proposed Negative Mood Induction with the Positive Mood Induction. Participants were quasi-randomly assigned to one of the three conditions: Positive Mood Induction, Negative Mood Induction, or Control.

Results

To examine possible pre-existing group differences across the three manipulations of interest (Positive Mood Induction, Negative Mood Induction, and Control), three separate one-way ANOVAs compared the pre-manipulation scores on (i) depression symptomatology (BDI), (ii) eating disorder symptomatology (EAT-26), and (iii) unusually high body dissatisfaction (EDI-BD). No pre-existing differences were found (Table 3).

Table 3

Mean depression, eating disorder, and body dissatisfaction scores for Experiment 2 groups.

	Positive (n = 11)		Negative (n = 9)		Control (n = 9)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(2, 28)$	*p*
BDI	6.00	5.66	6.22	6.91	6.11	4.94	.00	.10
EAT-26	4.18	5.04	7.00	6.75	6.22	6.10	.55	.58
EDI-BD	7.09	7.77	6.11	5.37	5.89	6.51	.09	.91

Note. BDI = Beck Depression Inventory, EAT-26 = Eating Attitudes Test-26, EDI-BD = Body Dissatisfaction Scale of the Eating Disorder Inventory.

Data Cleaning. Qualtrics, the online survey generator used, did not report responses from the 100 mm VAS unless the participant moved the sliding bar at least once. The bar was originally presented to the participant in the middle of the 100 mm line. Therefore, missing data points from the outcome measures (VAS) were replaced with the middle score (50).

Analysis Plan. Three separate 2 (Time) X 3 (Condition) mixed ANOVAs were calculated to examine the effect of the mood induction procedures on each of Mood,

Body Shape Satisfaction, and Body Weight satisfaction. The two levels of Time were Time 1 (pre-manipulation) and Time 2 (post-manipulation). The three levels of Condition were: Positive Mood Induction, Negative Mood Induction, and Control. The Negative Mood Induction was expected to decrease positive affect and body satisfaction as compared to the Control, thus replicating the results of Experiment 1. The Positive Mood Induction was expected to increase positive affect and body satisfaction as compared to the Control.

Mood.

Omnibus ANOVA. The data revealed a clear Time by Condition Interaction, $F(2, 26) = 9.32$, $p = .001$. When considered alone, there was neither a significant main effect of Time, $F(1, 26) = 3.19$, *n.s.,* nor Condition, $F(2, 26) = 2.92$, *n.s.,* on Mood (Table 4).

Table 4

Mean pre- (Time 1) and post-manipulation (Time 2) Mood and Body Satisfaction scores for Experiment 2 groups.

	Positive (n = 11)		Negative (n = 9)		Control (n = 9)		Time	Condition	Time X Condition
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(1, 26)$	$F(2, 26)$	$F(2, 26)$
Mood							3.19	2.92	9.32**
Time 1	54.91	23.22	54.56	22.75	65.22	14.95			
Time 2	72.73	14.77	43.78	23.22	73.00	16.98			
Body Shape							.00	.34	5.67**
Time 1	49.18	24.90	58.33	28.29	59.56	27.90			
Time 2	57.91	21.45	46.44	28.70	63.11	26.66			
Body Weight							.41	.19	2.66**
Time 1	56.18	22.19	54.44	33.59	52.67	33.82			
Time 2	59.27	23.13	45.11	32.31	54.33	30.73			

Note. *p<.05, **p<.01, ***p<.001

Control vs. Positive Mood Conditions. Additional analyses examining pairs of conditions revealed that the increase in positive affect for the Control and for the Positive Mood Induction was comparable, producing a main effect of Time, $F(1, 18) = 12.42$, $p = .002$, but neither a Time by Condition interaction, $F(1, 18) = 1.91$, *n.s.*, nor a main effect of Condition, $F<1$.

Control vs. Negative Mood Conditions. The analyses comparing changes in Mood for the Control and for the Negative Mood Induction revealed a significant Time by Condition interaction such that positive affect increased following the Control manipulation and decreased following the Negative Mood Induction, $F(1, 16) = 11.46$,

p = .004. There was also a main effect of Condition such that the original starting point (pre-manipulation scores) and the differential impact of the mood manipulations (post-manipulation scores) produced a difference in averaged mood scores across the two conditions, $F(1,16) = 5.00$, p = .04. There was no main effect of Time, $F<1$.

Positive vs. Negative Mood Conditions. The analyses comparing changes in Mood for the Positive and Negative Mood Inductions revealed a significant Time by Condition interaction such that positive affect increased following the Positive Mood Induction and decreased following the Negative Mood Induction, $F(1, 18) = 15.97$, p = .001. There was neither a main effect of Time, $F<1$, nor Condition, $F(1,18) = 2.78$, *n.s*. (Figure 2.1).

Body Shape Satisfaction.

Omnibus ANOVA. There was neither a significant main effect of Time, $F<1$, nor Condition, $F<1$, on Body Shape Satisfaction. There was a significant Time by Condition interaction, $F(2, 26) = 5.67$, p = .009 (Table 4).

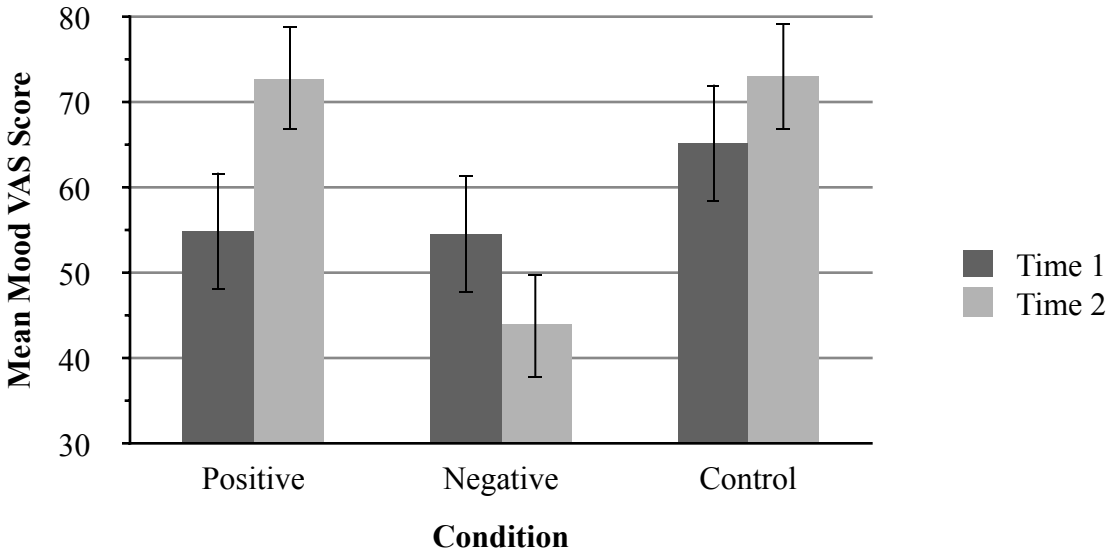

Figure 2.1. Means and standard errors of reported mood (VAS score) across the three conditions (Positive Mood Induction, Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was statistically significant, $F(2, 26) = 9.32$, $p = .001$.

Control vs. Positive Mood Conditions. Additional analyses examining pairs of conditions revealed that the increase in body shape satisfaction for the Control and for the Positive Mood Induction was comparable, producing a main effect of Time, $F(1, 18) = 7.38$, $p = .01$, but neither a Time by Condition interaction, $F(1, 18) = 1.31$, *n.s.,* nor a main effect of Condition, $F<1$.

Control vs. Negative Mood Conditions. The analyses comparing changes in body shape satisfaction for the control condition and for the negative mood revealed a significant Time by Condition interaction such that body shape satisfaction increased in the control condition and decreased in the negative mood condition, $F(1, 16) = 4.71$,

p = .05. There was neither a main effect of Time, $F(1, 16) = 1.37$, *n.s.*, nor Condition, $F<1$.

Positive vs. Negative Mood Conditions. The analyses comparing changes in Body Shape Satisfaction for the Positive and Negative Mood Inductions revealed a significant Time by Condition interaction such that body shape satisfaction increased following the Positive Mood Induction and decreased following the Negative Mood Induction, $F(1, 18) = 8.12$, p = .01. There was neither a main effect of Time, $F<1$, nor Condition $F<1$ (Figure 2.2).

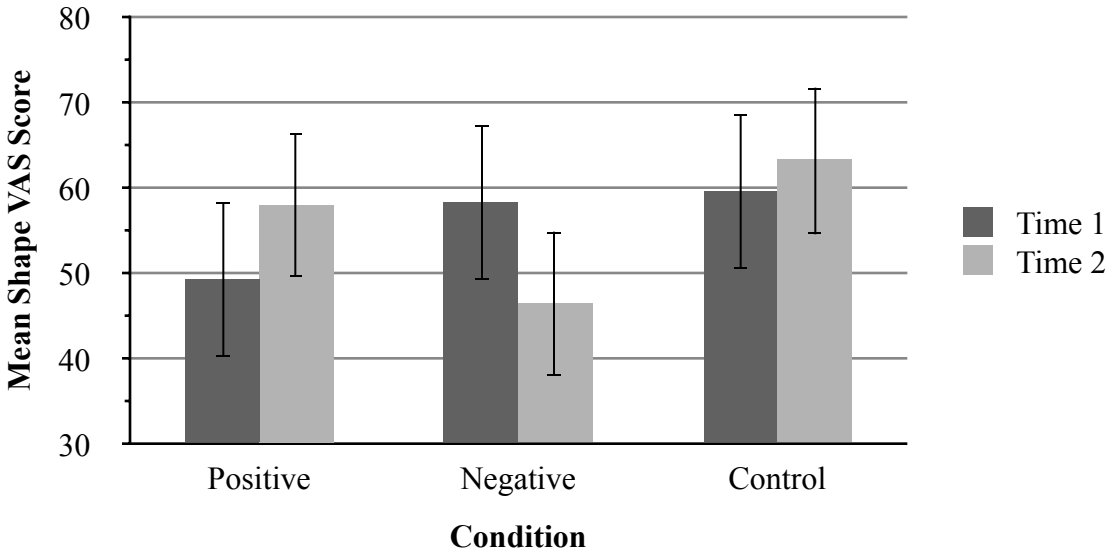

Figure 2.2. Means and standard errors of reported Body Shape Satisfaction (VAS score) across the three conditions (Positive Mood Induction, Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was statistically significant, $F(2, 26) = 5.67$, p = .009.

Body Weight Satisfaction.

Omnibus ANOVA. There was neither a significant main effect of Time, $F<1$, nor Condition $F<1$, nor a Time by Condition interaction, $F(2, 26) = 2.66$, *n.s.,* on Body Weight Satisfaction (Figure 2.3).

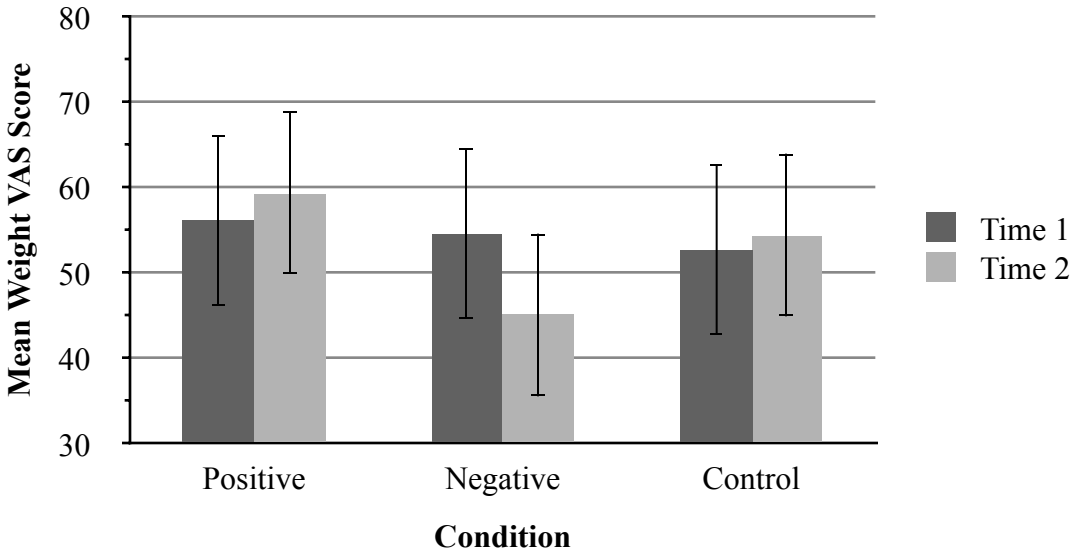

Figure 2.3. Means and standard errors of reported Body Weight Satisfaction (VAS score) across the three conditions (Positive Mood Induction, Negative Mood Induction, and Control) from pre-manipulation (Time 1, dark bars) to post-manipulation (Time 2, light bars); the interaction was not statistically significant, $F(2, 26) = 2.66$, *n.s.*

Discussion

The effectiveness of the mood manipulations in influencing mood and body shape satisfaction was demonstrated in Experiment 1 and Experiment 2. The inclusion of the Positive Mood Induction in Experiment 2 demonstrated that the Control did not have a different effect on mood than the Positive Mood Induction. These changes in mood were associated with changes in body shape satisfaction but not body weight satisfaction.

Haedt-Matt et al.'s (2012) Negative Mood Induction produced a significant decrease in positive affect and body shape satisfaction. Renner et al.'s (2013) Positive Mood Induction produced a significant increase in positive affect and body shape satisfaction.

Prior literature has not reliably found an increase in body satisfaction for the positive mood condition. The possibility that a positive mood induction could decrease dissatisfaction with body shape is potentially theoretically valuable and was investigated further in Experiment 3.

Experiment 3

The purpose of Experiment 3 was to examine possible body dissatisfaction intervention methods for a subclinical population. Aside from screening potential participants for clinical diagnoses, negative mood was induced across all conditions in order to simulate a subclinical population of body dissatisfaction (under the assumption that a negative mood induction would result in high levels of body dissatisfaction).

Gender differences in body dissatisfaction have been identified; women tend to have higher levels of overall body dissatisfaction than men (Blow & Cooper, 2014; Cho & Lee, 2013). Cho and Lee (2013) identified gender differences in idealized body shape. Men tend to idealize muscular body shapes and women tend to idealize thin body shapes. In the present study, body dissatisfaction was operationalized with two dimensions: body shape and body weight (Haedt-Matt et al., 2012). The current study specifically targeted the female idealized thin body shape and lighter body weight. Different interventions may be needed across gender due to identified differences in idealized body image.

Although both men and women were examined in Experiment 1 and Experiment 2, the primary goal for those experiments was to demonstrate the effectiveness of the mood induction procedures. Experiment 3 was designed to evaluate the potential effectiveness of body dissatisfaction interventions for nonclinical eating disorder behaviors. Given the prevalence of women among the population of those with eating disorders, the participant population for Experiment 3 was restricted to women only.

Finally, given that the control condition in Experiment 2 (reading neutral statements while music played) produced effects that did not differ from the positive mood induction, an alternate control condition (writing about a typical day) was introduced.

Method

Participants. San Jose State University students (all women) enrolled in introductory psychology courses completed the experiment in partial fulfillment of a course requirement (n = 86). Three students were excluded from analyses based on their scores indicating potential moderate depression on the Beck's Depression Inventory. Five additional students were excluded from analyses based on their potentially extreme scores on the Eating Attitudes Test. The remaining 78 participants were evenly distributed across the three conditions: Positive Mood Induction (n = 26), Mindfulness Mediation (n = 26), and Control (n = 26).

The final sample of students were generally (all but two) enrolled in their first or second year at San Jose State University and were on average 18.91 years old. The final

sample was also diverse in regards to ethnicity such that 41% of the total sample was Asian, 35.9% was Hispanic, 20.5% was White, and 9% was African American; it should be noted that some of the participants identified with more than one ethnicity. Finally, the majority of participants reported having little to no meditation experience.

Materials. The online versions of the BDI, EAT-26, EDI-BD, and VAS from Experiment 2 were also used in Experiment 3. An additional question was added to the prescreening questionnaire (Appendix D). Participants were asked if they had participated in Experiment 1 or Experiment 2. Participants were ineligible for Experiment 3 if they had participated in the prior experiments. The consent form was also updated (Appendix E). The Negative Mood Induction used in Experiment 2 was also used as the Negative Mood Induction in Experiment 3. The Positive Mood Induction used in Experiment 2 was used as the Positive Mood Induction in Experiment 3.

Demographics. The demographics questionnaire consisted of five questions. Participants were asked to respond to various demographic questions (age, ethnicity, citizenship, and year in school). Participants were also asked to give an estimate to how often they have practiced yoga or meditation. Participant responses were used to accurately describe the sample of participants (Table 5).

Table 5

Comparison of Experiment 3 groups on demographic characteristics.

	Positive (n = 26)		Mindfulness (n = 26)		Control (n = 26)	
Variable	*n*	*%*	*n*	*%*	*n*	*%*
Ethnicity:						
Asian	11	42%	13	36%	8	31%
African American	0	0%	1	4%	6	23%
Hispanic	9	35%	11	42%	8	31%
Middle Eastern	0	0%	0	0%	1	4%
Native American	0	0%	1	4%	0	0%
Pacific Islander	1	4%	1	4%	0	0%
White	7	27%	4	15%	5	19%
Citizenship:						
U.S. Citizen	23	88%	23	88%	25	96%
Non U.S. Citizen	3	12%	3	12%	1	4%
Year in School:						
Freshman	12	46%	14	54%	16	62%
Sophomore	12	46%	6	23%	8	31%
Junior	2	8%	2	8%	1	4%
Senior	0	0%	3	12%	0	0%
Graduate	0	0%	0	0%	1	4%
Meditation Experience:						
Never	17	65%	13	50%	16	62%
Less than Once a Month	5	19%	6	23%	4	15%
Once a Month	0	0%	4	15%	2	8%
2-3 Times a Month	2	8%	1	4%	2	8%
Once a Week	1	4%	2	8%	0	0%
2-3 Times a Week	1	4%	0	0%	1	4%
Daily	0	0%	0	0%	1	4%

Note. Percentages were rounded to the nearest whole number.

Five Facet Mindfulness Questionnaire Short Form (FFMQ-SF). The FFMQ-SF is a 24-item questionnaire with five subscales used to assess mindfulness meditation experience (Bohlmeijer et al., 2011). The FFMQ-SF has alpha coefficients between .72 to .92 (Baer et al., 2008). Each item is responded to via a 5-point Likert scale (*"never or*

very rarely true" to *"very often or always true"*). The five subscales are: observing (e.g., *"I pay attention to physical experiences, such as the wind in my hair or sun on my face"*), describing (e.g., *"I'm good at finding words to describe my feelings"*), acting with awareness (e.g., *"I find it difficult to stay focused on what's happening in the present moment"*), non-judging of inner experience (e.g. *"I tell myself I shouldn't be feeling the way I'm feeling"*), and non-reactivity to inner experience (e.g., *"I watch my feelings without getting carried away by them"*). The FFMQ-SF compared mindfulness meditation experience of the sample between groups.

Mindfulness Meditation. The mindfulness intervention used in the present study was a body scan meditation retrieved from a free online Mindfulness-Based Stress Reduction course (Potter, n.d.). Participants are guided through the meditation exercise via a voice recording for 20 minutes. Participants are instructed to attend to various body parts. They are instructed to observe and accept the sensations and emotions they may feel in in each body part without judgment. After a few moments of observation, the participants are instructed to release all tension they may feel in the observed body part.

Control Condition. The Control was the control condition used in Renner et al. (2014). Similar to the Positive Mood Induction, participants are instructed to write about a typical day for 15 minutes. Participants then engage in a mental imagery task of a typical day for five minutes.

Manipulation Check. A manipulation check was added for the final 32 participants. The manipulation check was introduced in order to examine the possible

cognitive strategies used to complete the tasks (Appendix F). Participants were asked to describe the instructions that were given for each task and to describe the thinking processes they used for the tasks. Participants were also asked to report the amount of effort they put into each task using a 10-point rating scale (1 = *"no effort"*, 10 = *"the most effort possible"*). Finally, each participant was asked to describe what they believed the research question or hypothesis was for the experiment.

Procedure. Participants signed up for individual experimental time slots for an experiment titled "Comparing Simple Self Perception Intervention Methods." Each experimental time slot was made available for one participant at a time. The researcher maintained a neutral affect throughout the experimental session in order to influence the participant as minimally as possible. Participants first completed the screening questionnaire and signed the consent form. Eligible participants completed the online versions of the Demographics Questionnaire, BDI, EAT-26, EDI-BD, and FFMQ-SF. They also completed the first set of Mood, Body Shape Satisfaction and Body Weight Satisfaction VAS (i.e., Time 1).

Participants were quasi-randomly assigned to one of the three conditions: Positive Mood Induction, Mindfulness Meditation, or Control. In order to investigate the effects of the body dissatisfaction interventions (Positive Mood Induction and Mindfulness Meditation), the participants were required to experience high levels of body dissatisfaction at the time of the study. Previous research has illustrated the causal relationship between negative mood and body dissatisfaction (Haedt-Matt et al., 2012).

Therefore, participants in all conditions completed the negative mood induction prior to their assigned intervention.

Following the negative mood induction, participants completed the second set of VAS (i.e., Time 2). Participants then completed their assigned manipulation. Following the completion of their assigned manipulation, participants completed the final set of VAS (i.e., Time 3). After completing these scales, participants completed the manipulation check and were debriefed. During debriefing, participants were informed that the purpose of the study was to examine possible interventions for body dissatisfaction. They were told which condition they had been assigned and whether they were subjected to one of the two interventions.

Results

The data were analyzed in a manner parallel to that used in Experiment 2, with the exception of the introduction of the additional baseline measure (Time 1) and the change from the negative mood induction to the experimental interventions (thus needing to compare data from Time 2 to Time 3).

To examine possible pre-existing group differences across the three manipulations of interest (Positive Mood Induction, Mindfulness Meditation, and Control), four separate one-way ANOVAs compared the pre-manipulation scores on (i) depression symptomatology (BDI), (ii) eating disorder symptomatology (EAT-26), (iii) unusually high body dissatisfaction (EDI-BD), and (iv) mindfulness mediation experience (FFMQ-SF). No pre-existing differences were found (Table 6).

Table 6

Mean depression, eating disorder, body dissatisfaction, and meditation experience scores for Experiment 3 groups.

	Positive (n = 26)		Mindfulness (n = 26)		Control (n = 26)			
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(2, 75)$	*p*
BDI	6.04	5.13	8.00	4.58	6.27	4.45	1.34	.27
EAT-26	5.42	4.16	7.92	5.49	4.77	4.67	2.96	.06
EDI-BD	7.15	6.14	6.64	7.51	5.19	4.54	.71	.50
FFMQ-SF	70.40	9.50	70.38	8.32	72.69	7.77	.62	.54

Note. BDI = Beck Depression Inventory, EAT-26 = Eating Attitudes Test-26, EDI-BD = Body Dissatisfaction Scale of the Eating Disorder Inventory, FFMQ-SF = Five Facet Mindfulness Questionnaire (Short-Form).

Analysis Plan. Two sets of three 2 (Time) X 3 (Condition) mixed ANOVAs were calculated to examine the effect of the mood induction procedures on each of Mood, Body Shape Satisfaction, and Body Weight Satisfaction.

The first set of mixed ANOVAs were used to examine the changes in Mood, Body Shape Satisfaction, and Body Weight Satisfaction following the negative mood induction. The two levels of Time were: Time 1 (pre-negative-mood-induction) and Time 2 (post-negative-mood-induction/pre-manipulation). The three levels of Condition were: Positive Mood Induction, Mindfulness Meditation, and Control. The negative mood induction was expected to decrease positive affect and body satisfaction in all three conditions; a difference between conditions was not expected as all three conditions completed the same negative mood induction.

The second set of mixed ANOVAs were used to examine the changes in Mood, Body Shape Satisfaction, and Body Weight Satisfaction following the experimental

manipulations. The two levels of Time were Time 2 (post-negative-mood-induction/pre-manipulation) and Time 3 (post-manipulation). The three levels of Condition were: Positive Mood Induction, Mindfulness Meditation, and Control. The Positive Mood Induction and Mindfulness Meditation were expected to increase positive affect and body satisfaction as compared to the Control.

Mood.

Omnibus ANOVAs. As expected, there was a significant main effect of Time on Mood such that positive affect decreased from Time 1 to Time 2 across conditions, $F(1, 75) = 89.89$, $p < .001$. There was also a significant main effect of Time on Mood such that positive affect increased from Time 2 to Time 3 across conditions , $F(1, 75) = 71.46$, $p < .001$ (Table 7).

Table 7

Mean pre- (Time 2) and post-manipulation (Time 3) Mood and Body Satisfaction scores for Experiment 3 groups.

	Positive (n = 26)		Mindfulness (n = 26)		Control (n = 26)		Time	Condition	Time X Condition
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(1, 75)	*F*(2, 75)	*F*(2, 75)
Mood							71.46***	.75	1.64
Time 1	59.73	19.38	56.42	18.38	55.58	18.69			
Time 2	41.85	18.43	39.19	18.85	41.46	15.63			
Time 3	63.96	16.94	58.38	18.66	54.31	21.34			
Body Shape							25.71***	.08	2.01
Time 1	44.77	26.22	52.96	28.65	55.81	21.91			
Time 2	40.31	25.74	44.04	29.88	47.35	22.78			
Time 3	53.85	21.07	54.50	26.53	51.85	27.80			
Body Weight							19.00***	.09	.59
Time 1	51.88	27.50	48.35	30.37	53.00	24.91			
Time 2	44.28	29.98	42.96	30.62	47.81	25.46			
Time 3	53.12	23.85	51.23	28.12	52.50	24.31			

Note. The *F*-values denoted in the table represent the change in Mood, Body Shape Satisfaction, and Body Weight Satisfaction from Time 2 to Time 3. *p<.05, **p<.01, ***p<.001

Although positive affect increased more from Time 2 to Time 3 for both the Positive Mood Induction and Mindfulness Meditation than for the Control, the Time by Condition interaction was not significant in the omnibus ANOVA, $F(2,75) = 1.64$, *n.s*. (Figure 3.1).

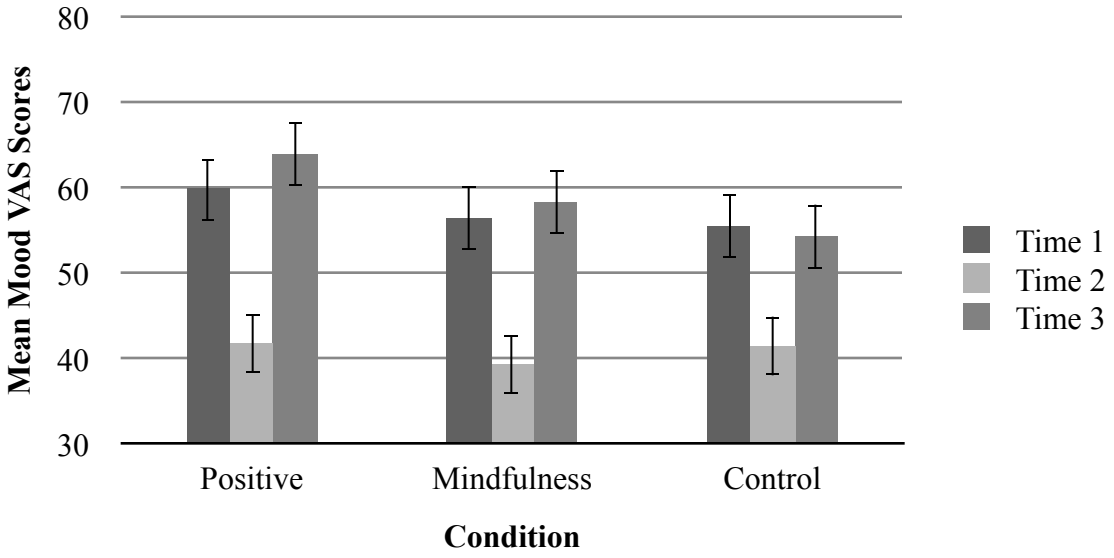

Figure 3.1. Means and standard errors of reported Mood (VAS score) across the three conditions (Positive Mood Induction, Mindfulness Meditation, and Control) from pre-negative mood induction (Time 1, dark bars) to pre-manipulation (Time 2, light bars), and from pre-manipulation (Time 2, light bars) to post-manipulation (Time 3, medium bars); the interaction was not statistically significant from Time 2 to Time 3, $F(2,75) = 1.64$, *n.s*.

Follow-up Comparisons. Subsequent examinations comparing the experimental conditions to the Control from Time 2 to Time 3 did reveal a marginal interaction when considered jointly, $F(1,76) = 3.00$, $p = .087$, and when just the Positive Mood Induction was compared to the Control, $F(1,50) = 2.90$, $p = .095$. The Mindfulness Meditation did not differ significantly from the Control, $F(1,50) = 1.40$, *n.s*.

Body Shape Satisfaction.

Omnibus ANOVAs. As expected, there was a significant main effect of Time on Body Shape Satisfaction such that body shape satisfaction decreased from Time 1 to Time 2 across conditions, $F(1, 75) = 31.89$, $p < .001$. There was also a significant main

effect of Time on Body Shape Satisfaction such that body shape satisfaction increased from Time 2 to Time 3 across conditions, $F(1, 75) = 25.71$, $p < .001$ (Table 7).

Although body shape satisfaction increased more from Time 2 to Time 3 for both the Positive Mood Induction and Mindfulness Meditation than for the Control, the Time by Condition interaction was not significant in the omnibus ANOVA, $F(2,75) = 2.01$, *n.s.* (Figure 3.2).

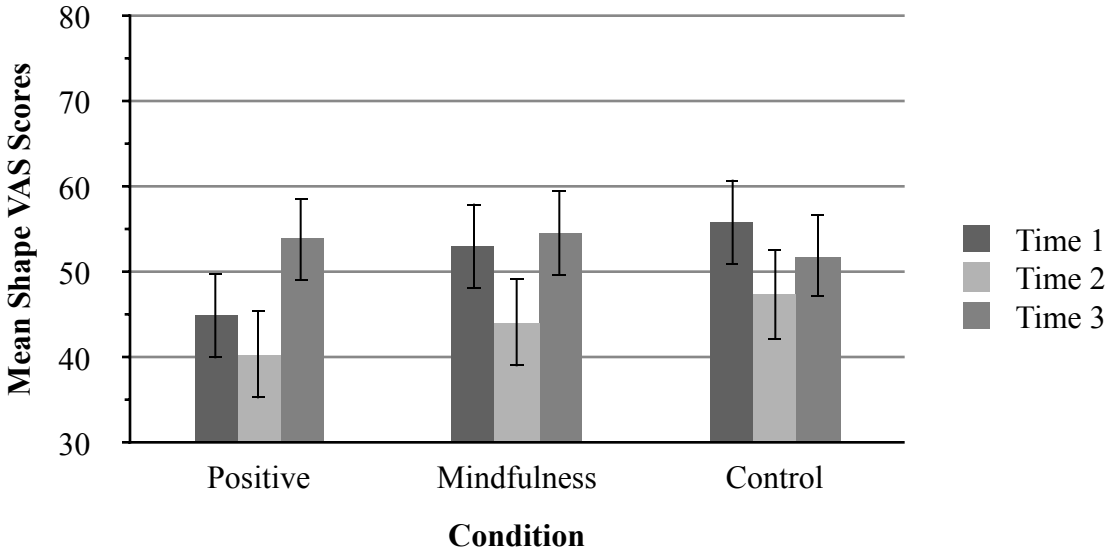

Figure 3.2. Means and standard errors of reported Body Shape Satisfaction (VAS score) across the three conditions (Positive Mood Induction, Mindfulness Meditation, and Control) from pre-negative mood induction (Time 1, dark bars) to pre-manipulation (Time 2, light bars), and from pre-manipulation (Time 2, light bars) to post-manipulation (Time 3, medium bars); the interaction was not statistically significant from Time 2 to Time 3, $F(2,75) = 2.01$ *n.s.*

Follow-up Comparisons. Subsequent examinations comparing the experimental conditions to the Control from Time 2 to Time 3 did reveal a marginal Time by Condition interaction when considered jointly, $F(1,76) = 3.59$, $p = .062$, and a significantly

different effect across Time when just the Positive Mood Induction was compared to the Control, $F(1,50) = 4.37$, $p = .042$. The Mindfulness Meditation did not differ significantly across time from the Control, $F(1,50) = 1.52$, *n.s*.

Body Weight Satisfaction.

Omnibus ANOVAs. As expected, there was a significant main effect of Time on Body Weight Satisfaction such that body weight satisfaction decreased from Time 1 to Time 2 across conditions, $F(1, 75) = 26.69$, $p < .001$. There was also a significant main effect of Time on Body Weight Satisfaction such that body weight satisfaction increased from Time 2 to Time 3 across conditions, $F(1, 75) = 19.00$, $p < .001$ (Table 7).

Although body weight satisfaction increased more from Time 2 to Time 3 for both the Positive Mood Induction and Mindfulness Meditation than for the Control, the Time by Condition interaction was not significant in the omnibus ANOVA, $F<1$ (Figure 3.3).

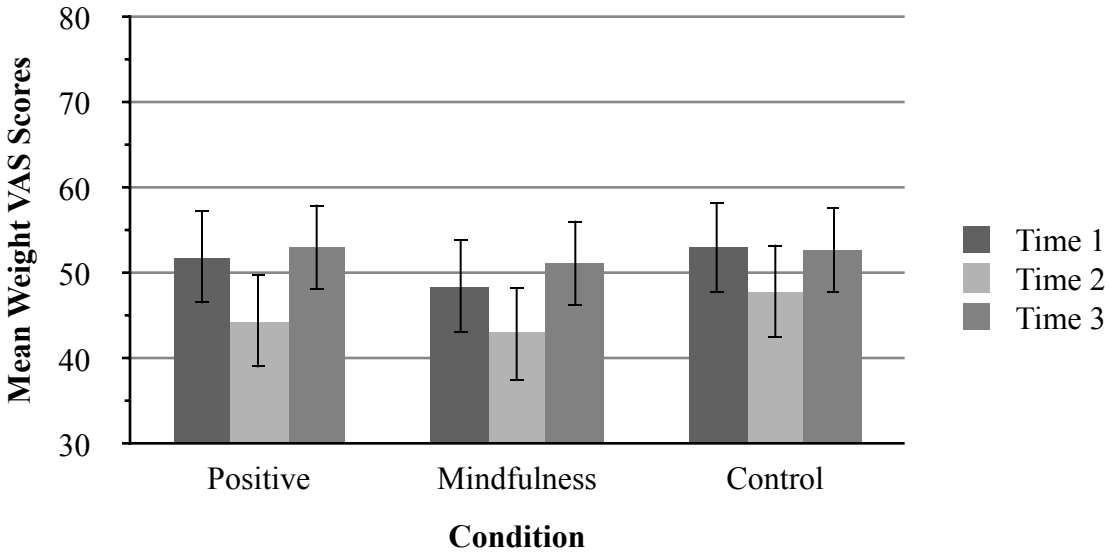

Figure 3.3. Means and standard errors of reported Body Weight Satisfaction (VAS score) across the three conditions (Positive Mood Induction, Mindfulness Meditation, Control) from pre-negative mood induction (Time 1, dark bars) to pre-manipulation (Time 2, light bars), and from pre-manipulation (Time 2, light bars) to post-manipulation (Time 3, medium bars); the interaction was not statistically significant from Time 2 to Time 3, $F<1$.

Follow-up Comparisons. A similar null result was obtained comparing the experimental conditions to the Control when considered jointly, $F(1,76) = 1.19$, *n.s.*, when compared against the Positive Mood Induction only, $F(1,50) = 1.19$, *n.s.,* and when compared against the Mindfulness Meditation only, $F<1$.

Manipulation Check. The responses to the manipulation check were examined. Many participants believed the research question regarded the effect of mood on changing self-perceptions and methods to improve mood when in a negative mood state. Therefore, they may have reported more drastic behavior changes following the experimental manipulations in order to parallel their perception of the research question.

Further Analyses. Mood (Figure 3.1), Body Shape Satisfaction (Figure 3.2), and Body Weight Satisfaction (Figure 3.3) increased from Time 2 to Time 3 in the Control. Participants assigned to the Control were instructed to write about a typical day for 15 minutes. Following the initial analyses, five raters scored the Control responses. Raters were instructed to rate the tone of the responses on a scale from -2 to 2, negative numbers indicating a negative tone, close to zero indicating a neutral tone, and positive numbers indicating a positive tone. The mean and mode of the coded responses were calculated. Control responses with positive (Mean $\geq .5$, Mode ≥ 1) or negative (Mean ≤ -5, Mode ≤ -1) tones were excluded from further analyses. Three participants were excluded for positive toned responses and four participants were excluded for negative toned responses.

Reanalysis of the restricted data set revealed a similar pattern of results to the original unfiltered data and produced similar main effects of Mood, Body Shape Satisfaction, and Body Weight Satisfaction and no interaction effects (Table 8).

Table 8

Mean pre- (Time 2) and post-manipulation (Time 3) Mood and Body Satisfaction scores for Experiment 3 groups excluding non-neutral Control responses.

	Positive (n = 26)		Mindfulness (n = 26)		Control (n = 26)		Time	Condition	Time X Condition
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	$F(1, 75)$	$F(2, 75)$	$F(2, 75)$
Mood							70.58***	.22	.82
Time 1	59.73	19.38	56.42	18.38	56.74	18.21			
Time 2	41.85	18.43	39.19	18.85	41.41	14.68			
Time 3	63.96	16.94	58.38	18.66	57.37	20.30			
Body Shape							22.67***	1.08	.27
Time 1	44.77	26.22	52.96	38.65	58.53	21.09			
Time 2	40.31	25.74	44.04	29.88	49.16	22.92			
Time 3	53.85	21.07	54.50	26.53	54.32	27.12			
Body Weight							18.46***	.13	.92
Time 1	51.88	27.50	48.35	30.37	52.32	26.02			
Time 2	44.28	29.98	42.96	30.62	47.26	26.25			
Time 3	53.12	23.85	51.23	28.12	53.16	23.75			

Note. The *F*-values denoted in the table represent the change in Mood, Body Shape Satisfaction, and Body Weight Satisfaction from Time 2 to Time 3. *p<.05, **p<.01, ***p<.001

The only significant interaction in the redone subsidiary analyses was that the Positive Mood Induction (increase of 13.5) marginally increased body shape satisfaction relative to the Control (increase of 5.2), $F(1,43) = 2.93$, $p = .094$.

Discussion

The failure to pick up an interaction in self-reported mood and body satisfaction from Time 2 to Time 3 across the three experimental conditions (Positive Mood Induction, Mindfulness Meditation, and Control) suggests that either (i) the Control Condition was flawed (essentially acting as a third positive mood manipulation), (ii) or

that the measures of mood and body satisfaction were insufficiently sensitive. Nevertheless, the Positive Mood Induction did produce (non-significantly) larger increases in positive affect and body shape satisfaction from Time 2 to Time 3 than the Mindfulness Meditation; and, in turn, the Mindfulness Meditation consistently produced (non-significantly) larger increases than the Control. The Positive Mood Induction produced a marginally larger increase in positive affect from Time 2 to Time 3 than the Control and produced a significantly larger increase in body shape satisfaction than the Control. In Experiment 3, the body weight satisfaction variable was not impactful.

The overall pattern of findings suggest that (i) replacing the control condition to one that is less likely to induce a positive mood did, in fact, provide some evidence that the positive mood induction procedure might impact body dissatisfaction, (ii) and that the measure of body shape satisfaction might be more sensitive to the experimental manipulations than the measure of body weight satisfaction.

General Discussion

The present study examined interventions that may target two known predictors of BDD and other eating disorders: negative affect and body dissatisfaction. However, due to the scarce resources available for individuals with nonclinical levels of body dissatisfaction, practical interventions for a nonclinical population were investigated. The three experiments examined whether the posited relationship between negative mood and negative body image could be replicated, and if interventions that target mood would also lead to increased self-perceived body image satisfaction.

Hypothesis 1

It was hypothesized that a negative mood induction would increase negative affect and decrease body satisfaction, and a positive mood induction would decrease negative affect and increase body satisfaction. There is clearly a strong and replicable relationship between negative affect and body dissatisfaction. The results of all three experiments demonstrated this potential causal relationship.

As previously discussed, positive mood inductions have been typically used as the comparison group in body dissatisfaction experiments (Plies & Florin, 1992; Taylor & Cooper, 1992). Taylor and Cooper (1992) found no difference in body dissatisfaction following a positive mood induction. However, the results provide insight into the possibility of using a positive mood induction as a body dissatisfaction intervention.

The lack of Time by Condition interaction effects in Experiment 3 suggests a flawed control condition. Two explanations for the control condition's lack of neutrality are discussed.

First, reflecting on past autobiographical events may be a positive mood induction, regardless of the specified content. Participants in the control condition were instructed to write about a typical day for 15 minutes. Following the written portion of the experiment, participants engaged in a mental imagery task of a typical day. Drace, Desrichard, Shepperd, and Hoorens (2009) used an autobiographical recall mood induction to induce both positive and negative mood. Participants were instructed to recall an important happy (positive mood induction) or sad (negative mood induction)

event from their past. Participants reported high positive affect following an autobiographical mood induction than in a picture and music mood induction. Thus, using an autobiographical recall about a typical day as the control condition may have unintentionally induced a positive or negative mood.

Second, participants in the control condition were expected to maintain the negative affect achieved following the negative mood induction for the entirety of the experiment. However, the negative mood induction may have only produced short-term feelings of negative affect. Therefore, participants may have naturally regressed to their baseline mood after a certain time period. This short time period may be approximately 20 minutes — the time is takes to complete the control condition manipulation.

The control condition participants reported the same level of positive affect prior to the negative mood induction and following the neutral mood induction, whereas the positive mood and mindfulness participants reported a slightly higher level of positive affect and body shape satisfaction following the body dissatisfaction interventions than prior to the negative mood induction (Figures 3.1 and Figure 3.2). These are the most important findings as it demonstrates the positive mood induction and mindfulness meditation's potential effectiveness in increasing mood and body shape satisfaction.

Hypothesis 2

It was also hypothesized that a (body-targeted) mindfulness meditation would produce a larger increase in body satisfaction than (a more generalized) positive mood induction. No evidence was found to support this hypothesis. In fact, the positive mood

induction and mindfulness mediation produced similar results; both interventions decreased negative affect and body dissatisfaction to a similar extent. The mindfulness meditation may potentially be considered an equally effective type of positive mood induction.

The mindfulness meditation was predicted to be a stronger intervention than the positive mood induction because improved mood is one of the many extensively researched mindfulness meditation benefits (Atkinson & Wade, 2012). Alternatively, the primary benefit of positive mood inductions is improved mood. The results suggest positive mood inductions may potentially provide some of the other positive benefits as mindfulness meditations.

Theoretical Implications

Of the two attitudinal measures, the body shape satisfaction measure produced stronger and more reliable results than the body weight satisfaction measure in all three experiments. Previous findings report a correlation between body esteem and depression, but not weight satisfaction and depression (Davis & Katzman, 1997). Both of these findings suggest that as a target for intervention, body shape satisfaction is likely to be a more important variable than body weight satisfaction.

Practical Implications

Ten percent of potential participants were excluded from participation based on extreme depression and eating disorder symptomatology scores. Subclinical levels of both negative affect and body dissatisfaction are clearly present in a young female college

student population. The proposed interventions were not strong enough to detect an interaction effect within the targeted nonclinical population. Stice and Shaw (2004) suggested successful clinical interventions have previously targeted high-risk individuals (i.e. clinical diagnosis) and occurred over multiple sessions. While the current study was targeted towards a nonclinical population who experience high levels of negative affect and body dissatisfaction, the results suggest the proposed interventions may be more beneficial targeting a subclinical population (e.g., high depression and eating disorder symptomatology scores potentially indicative of a future clinical diagnosis); these individuals may potentially benefit from a practical eating disorder prevention program.

The mood manipulations may produce a stronger effect in decreasing negative affect and body dissatisfaction if they are implemented as multiple session interventions. Although not significant, inducing positive mood indicated potential increases in body dissatisfaction. The positive mood induction was marginally stronger than the mindfulness meditation. However, the mindfulness meditation is a more practical intervention to implement in multiple sessions than the positive mood induction due to the variety of mindfulness intervention methods (e.g., body scan, sitting meditation, lying meditation).

Limitations

As indicated by the results of the manipulation check added to Experiment 3, demand characteristics may have biased the results such that participants may have responded to the outcome measures in a way that coincided with their belief of the

experiment's purpose. For example, participants may have reported more extreme negative scores following the negative mood induction and more positive scores following the body dissatisfaction interventions. Additionally, the negative mood induction instructions explicitly stated *"please try to get in a sad mood."* Therefore, participants may have reported being in a sad mood even if their report did not accurately reflect their mood state.

One possible solution to avoid demand biases in the future could be shortening the time given to respond to the outcome measures. Participants were given ample time to respond to the mood and body satisfaction outcome measures. Researchers reported observing participants changing their responses. This may have allowed participants time to think about their responses in order to align them with their belief of the experiment's primary purpose. Future research may choose to shorten the time allowed for participants to respond to the outcome measure.

Future Directions

The present study demonstrated potential effectiveness of short-term body dissatisfaction interventions (positive mood induction and body scan mindfulness meditation) for nonclinical levels of negative affect and body dissatisfaction. However, research on interventions for clinically diagnosed BDD and eating disorders has suggested long-term interventions are more effective than short-term interventions. For example, Albertson, Neff, and Dill-Shackleford's (2015) examined the effects of a three-week-long mindfulness meditation body dissatisfaction intervention (one 20-minute

meditation per day). The positive outcomes from the mindfulness meditation were maintained after a three month period of no intervention. The next steps will be to examine whether the short-term positive benefits of the suggested interventions can be maintained long-term in a nonclinical population.

Conclusion

All three experiments replicated prior results indicating the potential causal relationship between negative affect and body dissatisfaction. There is clearly a relationship between mood and body dissatisfaction such that a high level of negative affect results in a high level of body dissatisfaction. Experiment 3 demonstrated the short-term effectiveness of the proposed interventions for individuals who experience high levels of negative affect and body dissatisfaction. The current results suggest the possibility that long-term mood interventions may increase body satisfaction and thus lead to a decrease in eating disorder behavior.

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Appendix A: Experiment 1 and 2 Screening Questionnaire

Screening Questionnaire

Please answer the following questions as accurately and honestly as possible. Your responses to the questions will determine whether you are eligible for participation.

1. Are you 18 years or older?

   YES NO

2. Have you ever been diagnosed with depression, anxiety, or any other mood disorder?

   YES NO

3. Are you currently taking antidepressants?

   YES NO

4. Have you ever been diagnosed with an eating disorder?

   YES NO

Appendix B: Self Statements Questionnaire

Self Statements Questionnaire

DIRECTIONS: Please answer the following question by circling Y for "yes" and N for "no" in response to each item:

"Have you ever…"

1. **Y/N** ...been embarrassed?
2. **Y/N** ...been a victim of discrimination?
3. **Y/N** ...felt unsupported by your family and/or friends?
4. **Y/N** ...lost a pet?
5. **Y/N** ...had a panic attack?
6. **Y/N** ...been bullied?
7. **Y/N** ...been accused of something you did not do?
8. **Y/N** ...been in a physical confrontation?
9. **Y/N** ...been directly affiliated with a battle against cancer?
10. **Y/N** ...felt unattractive?
11. **Y/N** ...cheated on a significant other (physically or emotionally)?
12. **Y/N** ...been severely injured?
13. **Y/N** ...been in a traffic jam?
14. **Y/N** ...felt as though you're not going anywhere in life?
15. **Y/N** ...broken up with a significant other?
16. **Y/N** ...been treated unfairly by an authority figure?
17. **Y/N** ...felt guilty?
18. **Y/N** ...been criticized?
19. **Y/N** ...felt ashamed of something you have done?
20. **Y/N** ...regretted a decision you made?
21. **Y/N** ...lost a loved one?
22. **Y/N** ...felt as though you have no true friends?
23. **Y/N** ...made a poor decision?
24. **Y/N** ...failed a test?
25. **Y/N** ...lied to a loved one?
26. **Y/N** ...felt ignored?
27. **Y/N** ...been fired from a job?
28. **Y/N** ...bullied someone else?
29. **Y/N** ...felt as though you annoy other people?
30. **Y/N** ...had road rage?
31. **Y/N** ...been unsuccessful?

32. **Y/N** ...felt as though you are not as smart as others think you are?
33. **Y/N** ...been cheated on by a significant other (physically or emotionally)?
34. **Y/N** ...given up on something?
35. **Y/N** ...been reprimanded for academic dishonesty?
36. **Y/N** ...felt as though it will be harder for you to achieve success compared to your peers?
37. **Y/N** ...felt undeserving of admiration?
38. **Y/N** ...been dishonest?
39. **Y/N** ...been prejudice towards another race/ethnicity?
40. **Y/N** ...felt unpopular among your peers?

Appendix C: Experiment 1 and 2 Consent Form

REQUEST FOR YOUR PARTICIPATION IN RESEARCH

TITLE OF THE STUDY
A Comparison of Mood Intervention Effects on Self Perceptions

NAME OF THE RESEARCHER
Mark Van Selst, PhD, San Jose State University Faculty Sponsor
Gabrielle Rodgers, San Jose State University Experimental Psychology Graduate Student

PURPOSE
The purpose of this study is to replicate previous findings regarding the relationship between mood and self perceptions. The results of the study will be used to understand potential self perception mitigators.

PROCEDURES
This research study is expected to take 45 minutes of your time and will be conducted on campus at San Jose State University. You will be asked to complete a series of questionnaires and complete a mood task.

POTENTIAL RISKS
Participants in the experimental condition might experience some emotional discomfort when completing the mood task, which is designed to induce negative mood. The mood induction is designed to temporarily decrease positive mood, therefore, there is no foreseeable risk that is greater than a typical “bad day”.

POTENTIAL BENEFITS
There are no direct benefits for participating in this research study.

COMPENSATION
You will be compensated as indicated by their course instructor.

CONFIDENTIALITY
Although the results of this study may be published, no information that could identify you will be included. All data will be private and confidential and researchers will use this information to better understand the relationship between mood and self perceptions.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary. You can refuse to participate in the entire study or any part of the study without any negative effect on your relations with San Jose State University. You also have the right to skip any question you do not wish to answer. This consent form is not a contract. It is a written explanation of what will happen during the study if you decide to participate. You will not waive any rights if you choose not to participate, and there is no penalty for stopping your participation in the study.

QUESTIONS OR PROBLEMS
You are encouraged to ask questions at any time during this study.

- For further information please contact Gabrielle Rodgers at rodgers.alley@gmail.com
- Complaints about the research may be presented to Ronald F. Rogers, San Jose State University Psychology Department Chair at 408-924-5652.
- For questions about participants' rights or if you feel you have been harmed in any way by your participation in this study, please contact Dr. Pamela Stacks, Associate Vice President of Graduate Studies and Research, San Jose State University, at 408-924-2427.

SIGNATURES
Your signature indicates that you voluntarily agree to be a part of the study, that the details of the study have been explained to you, that you have been given time to read this document, and that your questions have been answered. You will receive a copy of this consent form for your records.

Participant Signature

_____

Participant's Name (printed) Participant's Signature Date

Researcher Statement I certify that the participant has been given adequate time to learn about the study and ask questions. It is my opinion that the participant understands his/her rights and the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to participate.

_____

Signature of Person Obtaining Informed Consent Date

Appendix D: Experiment 3 Screening Questionnaire

Screening Questionnaire

Please answer the following questions as accurately and honestly as possible. Your responses to the questions will determine whether you are eligible for participation.

1. Are you 18 years or older?

   YES NO

2. Have you ever been diagnosed with depression, anxiety, or any other mood disorder?

   YES NO

3. Are you currently taking antidepressants?

   YES NO

4. Have you ever been diagnosed with an eating disorder?

   YES NO

5. Did you participate in *A Comparison of Mood Intervention Effects on Self Perceptions*?

   YES NO UNSURE

6. If you responded "unsure" to question #5, briefly describe any similar experiments you have previously participated:

_____

_____

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Appendix E: Experiment 3 Consent Form

REQUEST FOR YOUR PARTICIPATION IN RESEARCH

TITLE OF THE STUDY

Comparing Simple Self Perception Intervention Methods

NAME OF THE RESEARCHER

Mark Van Selst, PhD, San Jose State University Faculty Sponsor
Gabrielle Rodgers, San Jose State University Experimental Psychology Graduate Student

PURPOSE

The purpose of this study is to examine possible self perception interventions. Results may provide implications to mitigate low self perception in the future.

PROCEDURES

This research study is expected to take 1 hour of your time and will be conducted on campus at San Jose State University. You will be asked to complete a series of questionnaires and complete two mood tasks. The first mood task may temporarily decrease positive mood. The second mood task will be a self perception intervention.

POTENTIAL RISKS

Participants might experience some emotional discomfort when completing the first mood task, which is designed to induce negative mood. The mood induction is designed to temporarily decrease positive mood, therefore, there is no foreseeable risk that is greater than a typical “bad day”.

POTENTIAL BENEFITS

There are no direct benefits for participating in this research study.

COMPENSATION

You will be compensated as indicated by your course instructor.

CONFIDENTIALITY

Although the results of this study may be published, no information that could identify you will be included. All data will be private and confidential and researchers will use this information to better understand the relationship between mood and self perceptions.

PARTICIPANT RIGHTS

Your participation in this study is completely voluntary. You can refuse to participate in the entire study or any part of the study without any negative effect on your relations with San Jose State University. You also have the right to skip any question you do not wish to answer. This consent form is not a contract. It is a written explanation of what will happen during the study if you decide to participate. You will not waive any rights if you choose not to participate, and there is no penalty for stopping your participation in the study.

QUESTIONS OR PROBLEMS
You are encouraged to ask questions at any time during this study.

- For further information please contact Gabrielle Rodgers at rodgers.alley@gmail.com
- Complaints about the research may be presented to Ronald F. Rogers, San Jose State University Psychology Department Chair at 408-924-5652.
- For questions about participants' rights or if you feel you have been harmed in any way by your participation in this study, please contact Dr. Pamela Stacks, Associate Vice President of Graduate Studies and Research, San Jose State University, at 408-924-2479.

SIGNATURES
Your signature indicates that you voluntarily agree to be a part of the study, that the details of the study have been explained to you, that you have been given time to read this document, and that your questions have been answered. You will receive a copy of this consent form for your records.

Participant Signature

_____

Participant's Name (printed) Participant's Signature Date

Researcher Statement I certify that the participant has been given adequate time to learn about the study and ask questions. It is my opinion that the participant understands his/her rights and the purpose, risks, benefits, and procedures of the research and has voluntarily agreed to participate.

_____

Signature of Person Obtaining Informed Consent Date

Appendix F: Manipulation Check

Please take a moment to answer the following questions regarding your experience during the experiment. Answer these questions as accurately and honestly as possible.

1. Describe the instructions that were given to you for each task:

First Mood Task:

Second Mood Task:

2. How did you complete the tasks? Was there a particular thinking process you used?

3. How much effort did you put into the task? (*1 = no effort, 10 = the most effort possible*)

First Mood Task:

1 2 3 4 5 6 7 8 9 10

Second Mood Task:

1 2 3 4 5 6 7 8 9 10

4. What do you believe is the research question/hypothesis for this experiment? In other words, what do you believe is the purpose of the experiment?