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# RELATIONSHIPS OF WEIGHT-RELATED DISSATISFACTION, BODY IMAGE FLEXIBILITY, AND COPING IN WOMEN

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# RELATIONSHIPS OF WEIGHT-RELATED DISSATISFACTION, BODY IMAGE FLEXIBILITY, AND COPING IN WOMEN

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RELATIONSHIPS OF WEIGHT-RELATED DISSATISFACTION, BODY IMAGE  
FLEXIBILITY, AND COPING IN WOMEN

By

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May, 2017

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## ABSTRACT

*Purpose:* The present study examined the relationships between body image flexibility, body image dissatisfaction, body image evaluation, and specific coping factors based on the WEIGHTCOPE measure. Body image flexibility was also examined as a mediator of the relationship between body image dissatisfaction and weight-related coping factors in women. *Methods:* An online link of the survey (Qualtrics Research Software Program) was distributed through social media and word of mouth to women of all body shapes and sizes ( $N= 267$ ). The survey included the BICS as a measure of body image dissatisfaction, the MBSR (AE) as a measure of body image evaluation, the BI-AAQ as a measure of body image flexibility, and the WEIGHTCOPE as a measure of weight-related coping. *Findings:* Results supported that body image dissatisfaction had significant relationships with particular coping factors as well as body image flexibility. Once determining these relationships, the mediation analysis supported the idea that body image flexibility had a role in the relationships between body image dissatisfaction and suggested negative weight related coping responses. *Conclusions:* The findings suggest the need to integrate interventions based on body image flexibility. Mindfulness based techniques address body image flexibility and can be utilized in treating body image dissatisfaction in women to help decrease negative coping behaviors.

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# Relationships of Weight-Related Dissatisfaction, Body Image Flexibility, and Coping in Women

## Introduction

According to the National Health and Nutrition Examination Survey, from 2011-2014, the prevalence of obesity was over 36 percent in adults, with a higher prevalence of obesity among women (38.3%) compared to men (34.3%) (Ogden, Carroll, Fryar, Flegal, 2015). Commonly, the concern for overweight and obesity are due to the associated several health risks, such as, coronary heart disease, high blood pressure, stroke, type 2 diabetes, and various types of cancers and disabilities. In addition, obesity is frequently accompanied with depression, through a bi-directional relationship (Atlantis & Ball, 2008). Accordingly, women are not only at a higher risk for having an unhealthy body mass index (BMI), but also a 37% increase in major depression (American Psychological Association, N.D.). In addition, somatic and psychological factors, such as poor health-related quality of life and mood/emotional instability can contribute to severe distress among these individuals. These feelings of distress might be to a weight related social stigma, which can develop feelings of disparagement of the body image and helplessness (Atlantis & Ball, 2008).

## Body Image Dissatisfaction

Body image dissatisfaction is defined in the present investigation as the emotional and/or psychological distress and disturbance (i.e. negative affectivity) stemming from

perceived discrepancies associated with one's body (e.g. weight, shape, size, fat level). A substantial number of women (50%-83%) have reported to be dissatisfied with their weight and/or bodies (Allaz et al., 1998; Cash & Henry, 1995; Fredrick, Peplau, & Lever, 2006; Friedman, Reichmann, Costanzo, Mustante, 2002; McLaren & Kuh, 2004; Neighbors, Sobal, Liff, & Amiraian, 2008), and even when they are not actually overweight (Allaz et al., 1998; Fitzgibbon, Blackmon, & Avellone, 2000; Kottke et al., 2002; Navia et al., 2003). Constant feelings of distress and dissatisfaction with one's body can lead to a number of risk factors, such as binge eating disorder (BED), anorexia nervosa, depression, and other chronic psychological disorders (Johnson & Wardle, 2005). Adult women who experience increased body image dissatisfaction, also can experience lower psychological well-being, lower self-esteem, greater depressive affect, lower overall quality of life, feelings of fatigue, marital dissatisfaction, and diminished sexual interest (McLaren & Kuh, 2004; Johnson & Wardle, 2005). In addition, body image dissatisfaction in individuals classified as obese often is associated with a stigma, and these individuals may face social discrimination within their daily lives (Milkewicz, Cash, & Hrabosky, 2004).

On the other hand, body satisfaction is an important component of maintaining a healthy mental well-being in women of all age groups (McLaren & Kuh, 2004).

However, there is pressure to maintain perceived standards for body image, which can cause further dissatisfaction and distress on an individual's body image. Accordingly, body image dissatisfaction and distress is common. A large-sample survey research suggests that about 66% of women in America are dissatisfied with their weight, and

some women report being on a weight-loss diet even when their weight is at or below normal.

### Coping

Consequently, individuals will engage in coping strategies to manage their body-image experience (Cash, Santos, Williams, 2004; Faries & Bartholomew, 2015).

Generally speaking, “coping is an individual’s cognitive and behavioral efforts to manage the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person’s resources,” (Folkman, Lazarus, Gruen, & DeLongis, 1986, pp. 572). Furthermore, there are two functions to coping based on the transactional model of stress and coping, problem-focused coping and emotion-focused coping (Folkman et al., 1986). Problem-focused coping involves an aggressive interpersonal approach by reducing the cause of the stressor in a problem-solving manner, whereas emotion-focused coping involves regulating the emotional response to a stressful situation. In terms of weight-related distress, individuals might feel a potential threat to their body image, initiating cognitive or behavioral strategies to cope with distressing thoughts, feelings, and/or situations (Cash et al., 2005). For instance, an individual might find temporary satisfaction by escaping or avoiding situations to reduce distress.

In order to understand the relationship between a person and the environment, Lazarus and Folkman developed the Transactional Model of Stress and Coping. This model is based on the stress formed from the interaction between a person and their environment caused by an imbalance between demands and resources placed on the person. When an individual encounters distress, they develop a primary appraisal which

considers whether the person has a personal stake with their environment (Lazarus & Folkman, 1987). The Transactional Model is a way to understand what is at stake when people are faced with threat, harm, or a challenge. Individuals who are experiencing body image dissatisfaction experience the same threat with society and self-perceptions when confronting their own body image, which can theoretically lead to aforementioned distress.

Recent research has elucidated how weight-related distress could be coped with. Cash colleagues (2005) developed the Body Image Coping Strategies Inventory (BICSI), which assessed three major coping factors: Positive rational acceptance, appearance fixing, and avoidance. Positive rational acceptance involves strategies focusing on positive self-talk about one's physical appearance and taking care of the self. Appearance fixing is making alterations of one's appearance by covering, camouflaging, or correcting any flaws associated with the perceived body image. Avoidance is the act of escaping any stressful body-image related situations. As the BICSI is directed at general body image disturbance, we are particularly interested in coping with distress stemming from perceived body weight, fat, and or shape.

The WEIGHTCOPE was developed to assess more specific coping responses in women dealing with this type of distress (Faries & Bartholomew, 2015). Combining a theoretical perspective from the transactional model of stress and coping and the feedback model of self-regulation, WEIGHTCOPE focuses on specific coping responses to weight-related triggers in women and can help understand the difference between weight-related coping and general-coping. Faries and Bartholomew (2015) determined

these coping factors to be: Physical Activity, Healthy Eating, Suppressed Eating, Supplement Use, Self-Regulation, Camouflage, Disengagement, Positive Reframe, Comfort Food, and Social Support. Physical Activity and Healthy Eating behaviors are considered to be positive problem-focused coping responses, and are common coping choices by becoming more physically active and making healthier food choices. Suppressed eating and supplement use are forms of coping that are considered to be negative problem focused responses. Suppressed eating is a form of coping that involves decreased food intake such as skipping meals, eating less and or ignoring. Supplement Use is described by using supplements and or medications to help with weight loss. Self-Regulation focuses on behaviors such as monitoring, planning, and strategizing. Positive-Reframing describes the idea of perceiving the situation in a positive manner and reflect positive views of oneself. Social Support is generally seen in those who are maintaining their weight and are utilizing family/friends/peers for support. Disengagement is a behavior where an individual avoids taking action to lose weight and accepts there are no methods to do so. Camouflage focuses on using clothing to hide or disguise one's weight which can lead to temporary satisfaction and decreased self-consciousness. Lastly, Comfort Food is an emotion-focused behavior by consuming common snack foods.

Body Mass Index (BMI), was negatively correlated with the use of Physical Activity and Healthy Eating and positively correlated with Disengagement, Camouflage, and Comfort Food. Weight satisfaction and body shape satisfaction was negatively correlated with Suppressed Eating, Supplement Use, Self-Regulation, Camouflage, and Comfort Food as coping responses to weight-related distress. Whereas, body shame was positively

correlated with Suppressed Eating, Supplement Use, Self-Regulation, Camouflage, and Comfort Food.

### Avoidance Coping and Body Image Flexibility

Avoidance coping (e.g. Disengagement, Camouflage, Comfort Food) is one of the coping responses frequently seen in body dissatisfaction, which might be directed to emotional distress, rather than problem-focused coping behavior (Faries & Bartholomew, 2015). For example, preoccupation with one's body image can promote avoidance to certain daily activities, such as wearing bathing suits, physical activity, social situations, and physical intimacy (McLaren & Kuh, 2004).

Although avoidance or elimination of negative thoughts leads to a temporary positive feeling state, a person can become highly resistant to adaptive behavioral change (Gross, 2002). In other words, an individual might struggle to make a constructive change with avoidance, potentially preventing them from making a positive behavioral modification in regards to their weight. Experiential avoidance occurs in a person who is not willing to keep in contact with a particular situation or experience, thus altering these situations to temporarily relieve negative feelings (Gross, 2002). *Psychological flexibility* is proposed to counter experiential avoidance, so that the individual can better appraise and cope with the perceived body-related distress. Psychological flexibility is defined as the ability to be in touch with the present moment and have the desire or willingness to change with functional behaviors according to chosen values (Hayes, 2004; Blarrina, Martinez, Salas, & Luciano, 2006), and is a component of Acceptance and Commitment Therapy (Ferreira, Pinto-Gouveia, & Duarte, 2011). The purpose of psychological

flexibility is not to force change or eliminate negative thoughts or feelings, but to increase flexibility in order to find acceptance. Similar to mindfulness, it allows recognition to perceptions, feelings, thoughts, sensations, and beliefs about an individual's body intentionally without changing frequency or form (Ferreira et al., 2011; Kabat-Zinn, 1982).

The same flexibility (or inflexibility) has been found in body image. Specifically, *body image inflexibility* is defined as the unwillingness to experience negative appearance-related events, while making the effort to change the form or frequency of these situations (Sandoz et al., 2013; Mancuso, 2016). For example, an individual who experiences lower body image flexibility, might engage in avoidant behaviors such as, binge eating, skipping meals, changing clothes, or canceling social plans, even if it contradicts her personal values. As discussed, these coping responses are derived from the severity of an individual's body image dissatisfaction. Also, body image inflexibility mediates the relationship of body image dissatisfaction and coping, respectively (Mancuso, 2016). In other words, women who avoid facing a negative evaluation of their appearance (i.e. dissatisfaction), are more likely to involve themselves in maladaptive coping strategies such as, appearance evaluation and appearance-fixing coping strategies. However, more research is needed to determine the relationship of body image flexibility on other coping choices in women.

#### Needed Research

Previous research emphasizes the importance of understanding body distress/dissatisfaction in women, however little research has developed an understanding

of the specific coping responses to this dissatisfaction. Therefore, a better understanding of how women cope with body image dissatisfaction is warranted. More specifically, more research is needed on the variation in body image dissatisfaction and coping responses in women, via the WEIGHTCOPE (Study Aim 1), as well as how such coping responses relate to perceived body dissatisfaction (Study Aim 2). In addition, the novelty of the role of body image flexibility in its relationship with both image dissatisfaction and various coping responses should be further explored (Study Aims 3-4). Finally, following findings of a previously mentioned study (Mancuso, 2016), we will examine if body image inflexibility mediates the relationship between body image dissatisfaction and specific coping responses (Study Aim 5).

## Method

### Participants

Women ( $\geq 18$  years of age) of all ethnicities, were recruited from across the university through in-person contact, social media, and word of mouth for a period of 3 months, resulting in the final sample size of  $N = 267$ . Specifically, students were recruited from different classrooms on campus with the instructor's permission, and a link was shared via Facebook and other social media outlets. The goal of recruitment was to emphasize the need for women of all body sizes in a 100% anonymous confidential manner, to help measure participation by those classified as overweight or obese by BMI (25-29.99  $\text{kg}/\text{m}^2$  and  $\geq 30 \text{ kg}/\text{m}^2$ , respectively). Such an emphasis is necessary; as overweight women might be hesitant to complete a survey on their body-related self-perceptions (e.g. experiential avoidance). Also, such effort helped ensure variation in

self-perceptions of body image inflexibility, as it is possible that those with low body image flexibility might be more prone to avoid completing the survey. Women classified as normal weight (18.5-24.9 kg/m<sup>2</sup>), although not the target population, was included as a comparison group. Women classified as underweight ( $\leq 18.5$  kg/m<sup>2</sup>) were excluded.

### Procedure

From the recruitment efforts, participants were provided with an online link to the survey (Qualtrics Research Software Program). The informed consent and reminder of anonymity and confidentiality of the survey, was provided on the first page. Consenting participants could continue and start the survey items. The measures were provided in the following order: (1) descriptives, (2) global self-esteem, (3) body image dissatisfaction, (4) body image evaluation, (6) body image flexibility, (7) coping via WEIGHTCOPE.

### Measures

Descriptive. Descriptive data included self-reported weight, height, years they have been their current weight, ideal weight, and ethnicity/race. BMI was calculated based on self-reported height and weight.

Global Self-Esteem. Global self-esteem was measured using The Single-Item Self-Esteem Scale was. The Single-Item Self-Esteem Scale is a one-item measure of global self-esteem. This measure was included as a demographic, to determine the overall self-esteem of all participants. The scale has strong convergent validity with the Rosenberg Self-Esteem Scale and had similar predictive validity as the Rosenberg Self-Esteem Scale. Participants will answer the single item on a 5-point Likert scale, ranging from 1 (not very true of me) to 5 (very true of me).

Body Dissatisfaction. Body image dissatisfaction was assessed through the Body Image Concern Scale (BICS; Ricciardelli & McCabe, 2002), which assesses the level of perceived dissatisfaction with one's body, body weight, body shape, and body fat (1-item each) on a 5-point scale from extremely satisfied to extremely dissatisfied.

Body Image Evaluation. Body image evaluation was assessed using a 7-item Appearance Evaluation (AE) subscale from the Multidimensional Body-Self Relations Questionnaire (Brown, Cash, & Mikulka, 1990; Cash, 2000; Mancuso, 2016). Respondents were assessed based on their self-appraisal of their physical appearance. The 5-point scale is ranged from 1 (definitely disagree) to 5 (definitely agree). Lower scores indicate a negative evaluative body image.

Body Image Flexibility. Body image flexibility was measured using the Body Image-Acceptance and Action Questionnaire (BI-AAQ; Sandoz et al., 2013). This 12-item questionnaire evaluates an individual's perceptions, thoughts, sensations, feelings, and beliefs about his or her body. Items were conducted through a 7-point scale, ranging from 1 (Never true) to 7 (Always true). The BI-AAQ is calculated by reverse scoring and summing the 12 items, resulting in one composite score that was used for all analyses. High scores reflect a greater body image flexibility, which determines an increased amount of effort to make positive changes to one's body image.

Coping. The present study measured coping through WEIGHTCOPE, a 38-item, 10-factor measure, which assesses 10 different coping factors in women (Faries & Bartholomew, 2015). These 10 coping factors include: Physical Activity, Healthy Eating, Suppressed Eating, Supplement Use, Self-Regulation, Camouflage, Disengagement,

Positive Reframe, Comfort Food, and Social Support. Participants were asked to rate each coping response on a scale from 1 to 7 (1 = not at all, 3 = somewhat likely, 5 = likely, 7 = definitely). Average scores for each factor were utilized for all analyses.

### Research Questions

RQ1: What is the mean body image dissatisfaction, variation in coping responses, and body image inflexibility in women?

RQ2: What is the relationship of body image dissatisfaction and body image evaluation with coping scores across the multiple coping responses?

RQ3: What is the relationship of body image inflexibility with body image dissatisfaction and body image evaluation?

RQ4: What is the relationship of body image inflexibility with coping scores across the multiple coping responses?

RQ5: Is the relationship of body image dissatisfaction with particular coping responses mediated by body image inflexibility?

### Hypotheses

R1/H1: There will be variation in the self-reported means of body image dissatisfaction and coping choices/factors.

R2/H2: There will be a relationship of body image dissatisfaction (positive) and body image evaluation (negative) with the various coping choices.

R3/H3: Body image flexibility will be negatively related to body image dissatisfaction and positively related to body image evaluation, indicating that being flexible in one's thinking can buffer body image concerns.

R4/H4: Body image flexibility will be negatively correlated with unhealthy forms of coping (e.g. disengagement, comfort food) and positively correlated to more healthier forms of coping (e.g. physical activity, healthy eating, self-regulation), due to its potential role in providing a counter to experiential avoidance and subsequent engagement in problem-focused coping

R5/H5: Body image inflexibility will mediate the relationship between body dissatisfaction and particular coping responses.

### Statistical Analysis

For H1, Mean, standard deviation, min and max was calculated for each variable. For H2-H4, Pearson correlations was used to examine linear relationships between the variables. In the case of a curvilinear relationship between certain variables, (visually confirmed with the examination of scatterplot), Spearman correlations were chosen. For H5, mediation analysis was conducted. The following steps are proposed to establish mediation (Baron & Kenny, 1986): (a) confirm correlation between the independent/predictor variable (body dissatisfaction or body image evaluation) and the outcome (coping factor), (b) confirm correlation between predictor variable, by regressing the outcome variable on mediator and predictor variables. With the predictor variable controlled for, the partial regression coefficient ( $\beta$ ) representing the effect of the

mediator on the outcome variable can be established. Mediation is demonstrated when the partial regression coefficient of the predictor variable is substantially reduced with the addition of proposed mediator. The Sobel method was used to test for a significant reduction in the partial regression coefficient (Sobel, 1982). For all correlations, only statistically significant correlations above .10 was considered.

If mediation was found, we concluded that body image flexibility does mediate the relationship between body dissatisfaction (and body image evaluation) and specific coping factors. These results would support the role of body image flexibility to the way women experiencing body image dissatisfaction and their coping choice. The alpha-criterion will be set at .05 for all analyses.

## Results

### *Participants*

Participants included women ( $\geq 18$  years of age) of all ethnicities, resulting in the final sample size of  $N = 338$ . With incomplete data and the exclusion of women classified as underweight ( $N=11$ ), left us with  $N=267$ . Descriptive means and standard deviations are presented in Table 1.

### *Means and Standard Deviations*

Means and standard deviations for variables are shown in Table 2. Generally speaking, results suggest that the sample was highly dissatisfied while having a low self-evaluation of their body. On average, women were moderately flexible in their thinking. Coping factors were overall high among physical activity, healthy eating, suppressed

eating, camouflage, & disengagement. Whereas supplement use, self-regulation, positive reframe, and comfort food had lower averages.

### Body Image and Coping

Pearson correlation analyses of all variables within the three weight classifications are shown in Tables 3-5. Regarding research question #2, body image dissatisfaction was generally positively correlated among negative forms of coping (e.g. suppressed eating, supplement use, camouflage), but not correlated with more positive forms of coping (physical activity, healthy eating, or self-regulation). The strongest relationship being supplement use ( $r = .44$ ) and camouflage ( $r = .47$ ) among all participants. Suggesting that overall the more dissatisfied participants were with their bodies the more likely they were to use negative approaches to weight related coping.

In women classified as normal weight, body image dissatisfaction was positively correlated with more negative forms of coping, but not correlated with more positive forms of coping but was weakly, negatively correlated with positive reframing, indicating those were more dissatisfied with their bodies tended to use less positive reframing when their body weight, size or shape was made salient to them. Similar results were observed in women classified as overweight and obese, with a few exceptions. Specifically, body image dissatisfaction in obese women was negatively correlated with healthy eating ( $r = -.30$ ), suggesting the more dissatisfied they were with their body, the less they used healthy eating as a coping behavior to body-related distress, while the more satisfied women tended to choose healthy eating as a coping behavior.

On the other hand, body image evaluation was generally negatively correlated with the negative forms of coping such as, supplement use, camouflage, and disengagement among all the participants. Specifically, body image evaluation moderately negatively correlated with supplement use ( $r = -.46$ ) and camouflage ( $r = -.47$ ). Women experiencing more positive self-evaluation of their bodies were less likely to report negative coping methods.

In women classified as normal weight, a higher evaluation of the body predicted lower levels of negative coping methods. Similar results were found in overweight and obese individuals, with the exception that women classified as obese indicated a high positive correlation to positive reframing ( $r = .332$ ). This reveals the idea that women classified as obese have a tendency to view themselves in a positive light when having a higher body image evaluation. Specially, body image evaluation in obese women was found to have a strong negative relationship to camouflage ( $r = -.51$ ), indicating the more positively they evaluated their body, the less likely they chose camouflage as a coping behavior.

#### *Body Image and Body Image Flexibility*

Referring to research question #3, body image flexibility was overall negatively correlated with body image dissatisfaction ( $r = -.60, p < .001$ ), and positively correlated with body image evaluation ( $r = .63, p < .001$ ). Similar findings emerged within each weight class. Body image dissatisfaction showed a strong negative correlation between body image flexibility among the three weight groups (Normal weight:  $r = -.65, p < .001$ ; Overweight:  $r = -.31, p < .001$ ; Obese:  $r = -.48, p < .001$ ), suggesting that women with

higher body image flexibility tended to be less dissatisfied with their bodies, especially in the normal weight women, where we found the strongest correlation.

### Body Image Flexibility and Coping

In general, body image flexibility was negatively correlated with most coping behaviors, with no positive correlations. In normal weight women, body image flexibility negatively correlated with 8 of the 10 coping responses (see Table 2). To highlight, the strongest relationships were with camouflage ( $r = -.62$ ), suppressed eating ( $r = -.60$ ) and disengagement ( $r = -.48$ ).

In women classified as overweight, body image dissatisfaction had significant, correlations with 5 out of the 10 WEIGHTCOPE factors (see Table 2). Strongest relationships were seen in suppressed eating ( $r = -.45$ ), camouflage ( $r = -.46$ ), and disengagement ( $r = -.41$ ).

Body image flexibility in women classified as obese, showed similar findings, however not all the same factors as the overweight individuals were strongly correlated. Body image flexibility displayed significant relationships with 5 out of 10 of the WEIGHTCOPE factors. Particularly, body image flexibility had the strongest relationship with camouflage ( $r = -.66$ ).

### Mediation Analysis

Regression analysis was used to examine whether body image flexibility mediates the effect of body image dissatisfaction on specific coping factors. Results indicate that in females classified as normal weight, body image dissatisfaction had a significant total effect on suppressed eating ( $\beta = .50, p < .000$ ), supplement use ( $\beta = .453, p < .02$ ), and

camouflage ( $\beta = .39, p < .000$ ). While controlling for body image flexibility (mediator), body image dissatisfaction demonstrated a nonsignificant direct effect with camouflage ( $\beta = -.007, p < .94$ ). This indicates that body image flexibility fully mediated the relationship between body image dissatisfaction and camouflage. Conversely, there was a significant direct effect on suppressed eating ( $\beta = .206, p < .04$ ) and supplement use ( $\beta = .25, p < .02$ ), which suggests a partial mediation when body image flexibility is used as mediator. A Sobel test was conducted and indicated partial mediation occurred with suppressed eating ( $z = 3.20, p < .001$ ) and a full mediation with camouflage ( $z = 4.16, p < .001$ ). Whereas, the Sobel test did not confirm a mediating effect with supplement use ( $z = 1.63, p < .10$ ).

In women classified as overweight, body image dissatisfaction had a significant total effect on Suppressed Eating ( $\beta = .27, p < .01$ ), Supplement Use ( $\beta = .34, p < .002$ ), and Camouflage ( $\beta = .43, p < .000$ ). While controlling for body image flexibility, there was a nonsignificant direct effect on Suppressed Eating ( $\beta = .14, p < .16$ ) with body image dissatisfaction. This suggests that body image flexibility fully mediated the relationship between body image dissatisfaction and Suppressed Eating. Whereas, there was a significant direct effect on supplement use ( $\beta = .23, p < .02$ ) and camouflage ( $\beta = .31, p < .002$ ), indicating a partial mediation occurred with the effect of body image flexibility. The Sobel test confirmed a full mediation with suppressed eating ( $z = 3.34, p < .008$ ) and a partial mediation with supplement use ( $z = 3.21, p < .001$ ) and camouflage ( $z = 3.82, p < .001$ ). Path diagrams with standardized coefficients for each coping factor are presented in Fig. 1A.

In obese females, body image dissatisfaction had a significant total effect on supplement use ( $\beta = .27, p < .02$ ) and camouflage ( $\beta = .39, p < .001$ ). While controlling for body image flexibility, there was a nonsignificant direct effect on supplement use ( $\beta = -.17, p < .20$ ) and camouflage ( $\beta = .10, p < .34$ ) with body image dissatisfaction. These results suggest that body image flexibility fully mediated the relationship between body image dissatisfaction and supplement use and camouflage. However, the Sobel test did not confirm mediation in the model with supplement use ( $z = -.011, p < .99$ ) and camouflage ( $z = 1.24, p < .21$ ). Path diagrams with standardized coefficients for each coping factor are presented in Fig. 1B.

### Discussion

The purpose of this study was to examine the relationships between body image flexibility, body image dissatisfaction, body image evaluation, and specific coping factors based on the WEIGHTCOPE measure. As well as explore the idea whether body image flexibility mediated the relationship between body image dissatisfaction and weight-related coping factors in females. Understanding these relationships can identify the common coping choices women make while experiencing high levels of dissatisfaction, and help future research understand ways to intervene and provide awareness in individuals to make positive coping choices.

The findings from the results in regards to research question #1 identified a variation in mean scores among all the individuals. These results suggested that the participants were highly dissatisfied with a low self-evaluation of their body weight, shape, and size. With limited studies analyzing flexibility in women, the present study

demonstrated moderate body-image flexibility across all three weight classifications. Coping factors among these women were overall high in both problem-focused and emotion-focused coping choices.

### *Body Image and Weight-Related Coping*

Body image dissatisfaction is an emotional disturbance initiated by negative perceptions with one's body. The results from the present study suggested the assumption that women who are more dissatisfied with their bodies, tend to lean more towards negative coping choices. It appeared that women, regardless of their body classification, found camouflaging a more common coping method when experiencing feelings of dissatisfaction. Camouflaging is the attempt to hide or disguise one's weight with clothing, this can improve mood and lessen feelings of dissatisfaction (Faries & Bartholomew, 2015). Furthermore, positive reframe had a weak, negative relationship towards body image dissatisfaction. Which elucidates that women who have higher levels of dissatisfaction, maintain negative views of themselves, therefore choosing negative coping responses. Encouraging positive reframing may be helpful in allowing an individual to manage their dissatisfaction in a more positive light and to reinforce positive affect, which may help them make positive coping decisions (Carver et al., 1989; Folkman, 1997; Faries & Bartholomew, 2015).

At the same time, body image evaluation, gave similar responses, though a better body image evaluation was proposed to have a negative relationship to negative coping methods. In other words, an individual who perceives to evaluate their body positively, they would be less likely to engage in negative coping choices. The present study

discovered that in women classified as overweight and/or obese, were less likely to choose negative coping methods such as, supplement use and camouflaging, when having a positive evaluation of their body image. Accordingly, women classified as obese were more likely to report positive reframing as a form of coping if they reported having a better body image evaluation. This is a very important relationship, especially since poor evaluation and increased dissatisfaction has been shown to lead to negative coping choices. When an individual is positively evaluating their body image, they are more likely to view their bodies in a positive light. To be able to see such relationship in these individuals, suggests that not all women classified as obese are going to make unhealthy choices. Therefore, suggesting an intervention can be used to assist individuals to make better coping choices by helping them positively evaluate their body image.

#### *Body Image and Body Image Flexibility*

Body image dissatisfaction and body image flexibility was evaluated for the first time in the present study. Body image dissatisfaction was expected to have a negative relationship with body image flexibility. The results supported this idea, women across all body image classifications displayed greater flexibility when they are more satisfied with their body. Thus, suggesting increasing one's flexibility of their body, can ease feelings of dissatisfaction in women.

The patterns associated with body image evaluation and body image flexibility in the present study were similar to the findings from the study by Mancuso (2016). An increased body image evaluation was positively related to a greater body image flexibility. In this case, women who are unwilling to experience a negative self-

evaluation of their body image may be more likely to engage in negative coping behaviors (Mancuso, 2016).

### *Body Image Flexibility and Weight-Related Coping*

Body image flexibility was negatively related to most weight-related coping factors. It was expected that body image flexibility would negatively correlate with negative coping factors and positively correlate with positive coping factors. However, in the present study, no positive correlations were found, which suggests that increased body image flexibility does not have a role in making positive coping choices. Yet, the present findings are shown to be of value, as an increase in flexibility can be used as a teaching method to minimize negative coping decisions. Especially, with negative coping factors such as suppressed eating, supplement use, and camouflaging, which appeared to have strong correlations among all three weight classifications. This can be due to the accumulated knowledge of these individuals; therefore, it may be necessary to help increase knowledge of positive weight-related coping regardless of their body image flexibility. In the study by Mancuso (2016), body image flexibility appeared to have a strong association to appearance-fixing and experiential avoidance. This parallels with the present findings, as camouflaging is considered to be an appearance fixing maladaptive coping response and suppressed eating in some cases can be considered as an avoidant behavior (Erskine & Georgiou, 2010; Mancuso, 2016). Thus, emphasizing the idea that body image flexibility does relate to specific weight-related coping factors and can be further studied in cases where women are feeling highly dissatisfied or stressed regarding their body.

### Mediation

It was novel to examine the role of body image flexibility on coping factors based on significant relationships with body image dissatisfaction. As hypothesized, body image flexibility was found to act as a mediator between body image dissatisfaction and particular weight related coping choices. The patterns found in the study by Mancuso (2016), were seen in the present study in terms of weight specific coping. However, rather than focusing on body image evaluation, body image dissatisfaction analyzed the idea of coping with high levels of distress from perceived body weight, fat, and or shape. Body image flexibility was found to fully mediate the relationship between body image dissatisfaction and suppressed eating in females classified as overweight, as well as supplement use and camouflaging in females classified as obese. This suggests that the willingness to experience higher levels of dissatisfaction while making attempts to change their form or frequency may be associated with a decrease in making negative coping choices (Cash et al., 2005; Sandoz et al., 2013; Mancuso, 2016). Furthermore, a partial mediation occurred between body image dissatisfaction and supplement use and camouflage in overweight females. Which implies that body image flexibility had some role in the mediating the relationship between body image dissatisfaction and the specific coping choice, but is not entirely dependent on it.

### Limitations

Several limitations must be considered while analyzing the results of the present study. First, our study was an online self-reported survey which prevented us from being able to control for honest responses. Weight classifications were measured according to

BMI standards, therefore many overweight females could have been considered as athletes or generally fit individuals. Many participants were recruited from the kinesiology department via mass email or from a HMS class for extra credit, the rest came from social media. Future studies should consider recruiting more from the community rather than only college students. The current study was only limited to females, further research can be broadened by comparing males and females. There are limitations to the specific measures used in this study. The BI-AAQ (Sandoz et al., 2013) has been questioned for concern and is suggested to be used as a “preliminary gauge” of an individual’s body image flexibility (Webb, Wood-Barcalow, & Tylka, 2015; Mancuso, 2016). Future research should modify or evaluate a more “psychometrically sound” measures of body image flexibility (Mancuso, 2016).

### Conclusion

In conclusion, the purpose of this study was to determine relationships between body image dissatisfaction, body image flexibility, and specific weight-related coping factors. Overall, determining the coping factors that are mediated by body image flexibility from experiencing body image dissatisfaction. These findings suggest the need to integrate interventions based on body image flexibility. Mindfulness based techniques address body image flexibility and can be utilized in treating body image dissatisfaction in women. These specific factors should be further reviewed to find a better understanding as to how body image flexibility can be used in a non-clinical practical setting. As well as developing a method to help an individual transition from a low flexibility to an increased body image flexibility.

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**Table 1**  
Participants Demographics

	Normal Weight	Overweight	Obese
n	111	82	74
Body Mass Index	21.00 ± 1.68	26.89 ± 1.36	38.19 ± 6.50
Height (in)	64.87 ± 3.62	64.60 ± 2.92	65.20 ± 2.69
Current Weight (lbs)	128.89 ± 18.33	156.48 ± 18.00	225.93 ± 44.44
Years at Current Weight	2.59 ± 2.95	1.90 ± 2.49	2.87 ± 5.31
Ideal Weight (lbs.)	122.50 ± 17.57	135.60 ± 22.4	161.86 ± 29.32
Global Self-Esteem <sup>a</sup>	4.50 ± 1.49	4.08 ± 1.47	3.50 ± 1.65

<sup>a</sup>Global Self-Esteem was assessed on a 1 to 7 scale, with a higher score representing a higher perceived self-esteem.

**Table 2**  
Means and Standard Deviations

N=	Means	Standard Deviation
BMI	27.98	7.55
Global Self-Esteem	4.11	1.57
Body Image Dissatisfaction	13.73	3.76
Body Image Evaluation	2.96	0.93
Body Image Flexibility	55.22	18.37
<b>WEIGHTCOPE Factors</b>		
Physical Activity	16.28	5.65
Healthy Eating	17.43	5.85
Suppressed Eating	14.40	4.49
Supplement Use	7.53	5.54
Self-Regulation	11.88	4.79
Camouflage	16.63	7.37
Disengagement	13.11	5.06
Positive Reframe	10.76	4.05
Comfort Food	7.97	3.81
Social Support	11.37	6.50

**Table 3**  
 Correlations between Body Image Dissatisfaction, Body Image Flexibility, &  
 WEIGHTCOPE Factors in Normal Weight Women

	Body Image Dissatisfaction	Body Image Evaluation	Body Image Flexibility
Body Image Flexibility	-.65**	.62**	-
<u>WEIGHTCOPE Factors</u>			
Physical Activity	.14	-.11	-.39**
Healthy Eating	-.01	.031	-.26**
Suppressed Eating	.51**	-.37	-.60**
Supplement Use	.45**	-.40**	-.47**
Self-Regulation	.15	-.13	-.28**
Camouflage	.40**	-.31**	-.62**
Disengagement	.39**	-.36**	-.48**
Positive Reframe	-.29**	.26**	.01
Comfort Food	.29**	-.24	-.23*
Social Support	-.16	.17	.06

\*p < .05; \*\*p < .01

**Table 4**

Correlations between Body Image Dissatisfaction, Body Image Flexibility, &amp; WEIGHTCOPE Factors in Overweight Women

	Body Image Dissatisfaction	Body Image Evaluation	Body Image Flexibility
Body Image Flexibility	-.31**	.45**	-
<u>WEIGHTCOPE Factors</u>			
Physical Activity	-.01	.09	-.22
Healthy Eating	-.01	.09	-.20
Suppressed Eating	.27*	-.22	-.45**
Supplement Use	.34**	-.37**	-.41**
Self-Regulation	.16	-.05	-.26*
Camouflage	.43**	-.41**	-.46**
Disengagement	.21	-.19	-.41**
Positive Reframe	-.28*	.21	.07
Comfort Food	.14	-.15	-.21
Social Support	-.11	.12	-.16

\*p &lt; .05; \*\*p &lt; .01

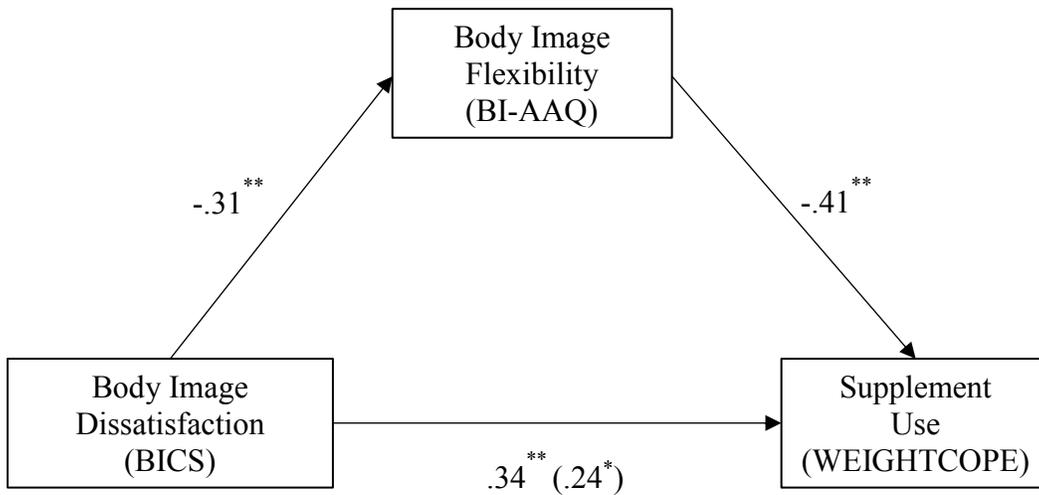
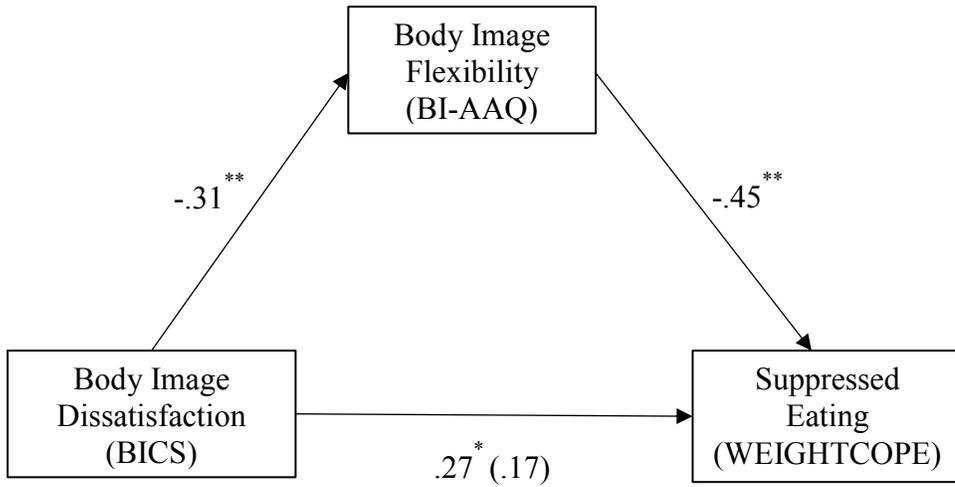
**Table 5**

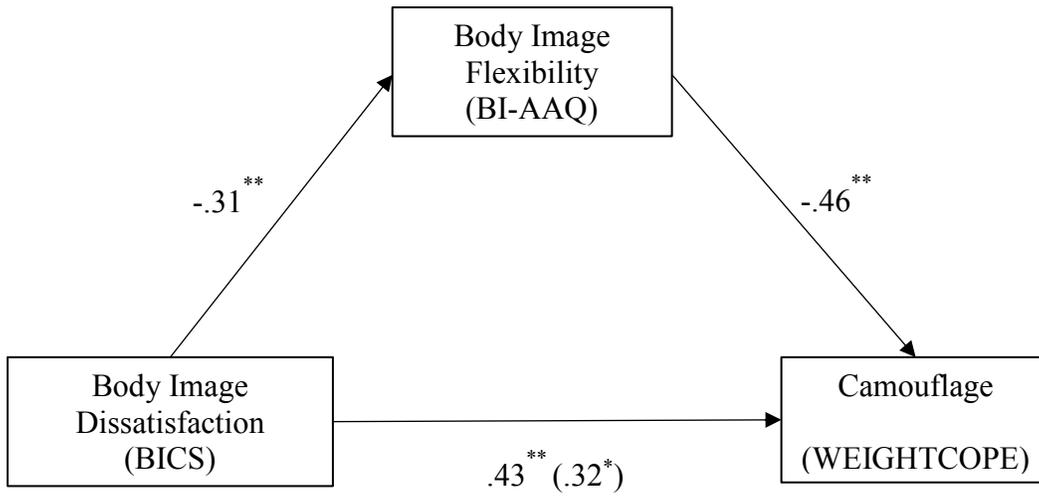
Correlations between Body Image Dissatisfaction, Body Image Flexibility, &amp; WEIGHTCOPE Factors in Obese Women

	Body Image Dissatisfaction	Body Image Evaluation	Body Image Flexibility
Body Image Flexibility	-.48**	.56**	-
<u>WEIGHTCOPE Factors</u>			
Physical Activity	-.14	.15	.04
Healthy Eating	-.29**	.28*	-.04
Suppressed Eating	.003	-.20	-.26*
Supplement Use	.27*	-.30**	-.26*
Self-Regulation	-.01	.03	-.22
Camouflage	.39**	-.51**	-.66**
Disengagement	.08	-.18	-.35**
Positive Reframe	-.26*	.33**	.09
Comfort Food	.18	-.30**	-.38**
Social Support	.05	.11	-.18

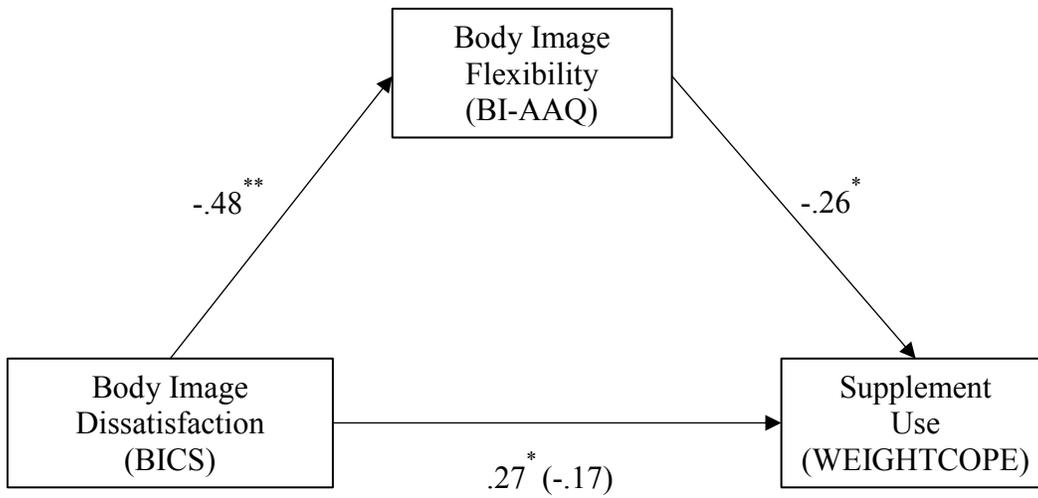
\*p &lt; .05; \*\*p &lt; .01

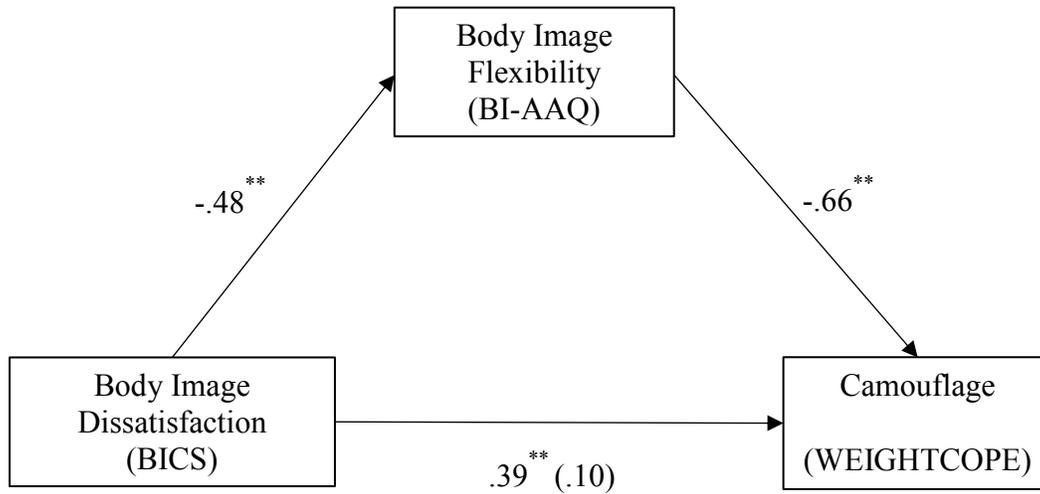
A





B





**Fig. 1.** (A) Mediation models for overweight females, using Suppressed Eating, Supplement Use, and Camouflage as the coping factor. (B) Mediation models for obese females, using Supplement Use and Camouflage. *Note:* Betas in parentheses reflect the effect of body image dissatisfaction while controlling for the mediator; \*  $p < .05$ ; \*\*  $p < .001$

## VITA

After completing her work at Plano East Senior High School, Plano, Texas, in 2011, Pooja Shah entered Stephen F. Austin State University at Nacogdoches, Texas. She received the degree of Bachelor of Science from Stephen F. Austin State University in August, 2015. Following graduation, she entered the Graduate School of Stephen F. Austin State University, and accepted a Graduate Assistantship for the department of Fitness & Human Performance, and received the degree of Master of Science in May of 2017.

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