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The Relation between Appearance Evaluation and Disordered Eating Attitudes Throughout College: Trajectories and Moderators

Amy Heard
Loyola University Chicago

LOYOLA UNIVERSITY CHICAGO

THE RELATION BETWEEN APPEARANCE EVALUATION AND DISORDERED EATING ATTITUDES THROUGHOUT COLLEGE: TRAJECTORIES AND MODERATORS

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AMY M. HEARD

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ABSTRACT

The college years are a time of increased risk for body image concerns and disordered eating in both men and women. Studies have shown that body image concerns may emerge in childhood, increase throughout adolescence, and become more stable in middle adulthood, but less is known about the changes that happen during the college years that may cause these concerns to level off. One of the most common ways of assessing body image is by measuring appearance evaluation, or global satisfaction with appearance. While problematic appearance evaluation and disordered eating attitudes are often associated with one another, all individuals who are dissatisfied with their appearance do not go on to develop an eating disorder. This may be due to moderating factors such as mindfulness and expressive suppression. The current study draws on a longitudinal sample of college students assessed on measures of psychosocial functioning, including appearance evaluation, disordered eating attitudes, mindfulness, and expressive suppression. This study found that while appearance evaluation was stable across the college years, disordered eating attitudes increased during that time period. Over the course of college, appearance evaluation significantly predicted disordered eating attitudes. However, mindfulness and expressive suppression were not predictive of disordered eating attitudes, and did not impact the relation between appearance evaluation and disordered eating attitudes. These results demonstrate the importance of designing disordered eating interventions that span the entire course of

college and have implications for the current literature on the link between mindfulness, emotion regulation, and disordered eating attitudes.

CHAPTER ONE

INTRODUCTION

The college years may represent a key period in the development of poor body image and disordered eating. These years also represent a transition from adolescence to emerging adulthood, and bring with them decreases in physical activity, increases in weight gain, and alterations in eating habits (Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008). Studies have shown that college women suffer from particularly poor body image, leading the problem to be labeled as a "normative discontent" among women (Cash & Henry, 1995). This poor body image is often accompanied by disordered eating attitudes and behaviors (Mazzeo, 1999). More recently, research has shown that college men also experience poor body image, even though it may be expressed differently than it is in women (Olivardia, Pope, Borowiecki, & Cohane, 2004). Because the college years represent a time of self-discovery and exploration (Arnett, 2000), it is possible that body image concerns may intensify during this time.

Body image is a multidimensional construct composed of body related thoughts, beliefs, feelings, and behaviors related to the perceptions and attitudes that a person has about him or herself (Cash & Pruzinsky, 1990; Cash, 2004). Specifically, body image can be broken down into two main components – satisfaction with appearance (i.e., how good I think I look) and investment in appearance (i.e., how important my looks are to me) (Thompson, 2004). These components can then be conceptualized either globally,

referring to the entire body, or specifically, referring to a specific body part (Thompson, 2004). Because of the complexity of body image, measurement can be difficult. There are currently over 50 published instruments that seek to measure body image in different ways (Cash, 2004); however, appearance evaluation, which assesses satisfaction with appearance on a global level, is one of the most commonly measured aspects of body image.

Appearance Evaluation in College Women

Over the past 30 years, the measurement of appearance evaluation has been well-validated and used extensively in samples of college students (Brown, Cash, & Mikulka, 1990; Cash, Morrow, Hrabosky, & Perry, 2004). A meta-analysis revealed increasingly pronounced gender differences in appearance evaluation during this time, reflecting greater negative appearance evaluation among college women (Feingold & Mazella, 1998). This gender difference was supported by Cash and colleagues (2004), who concluded that despite overall improvements in appearance evaluation over the last decade of the 20th century, negative appearance evaluation remained a pervasive problem that fluctuated more in women than in men.

Although general trends in appearance evaluation have been studied in college women, these studies have not captured the specific changes that may occur over the course of college. To date, only one study has evaluated such alterations during the early college years. Gillen and Lefkowitz (2012) assessed changes in appearance evaluation from the beginning of the first year to the end of the second year of college. They found that, consistent with previous studies, female students were overall less satisfied with their bodies than male students, and that this did not change over the course of the study

period (Gillen & Lefkowitz, 2012). However, although women's appearance evaluation was stable from the beginning to the end of the first year, it improved during the second year, despite increases in BMI (Gillen & Lefkowitz, 2012). This suggests that body image may begin to improve during the early college years before it levels off in middle adulthood (Tiggemann, 2004). It also raises the question of what occurs during the rest of the college years.

Disordered Eating in College Women

One of the reasons it is important to evaluate changes in appearance evaluation across the course of college is because of the well-established role of negative appearance evaluation in the development of disordered eating in women. Research has consistently shown that negative appearance evaluation is a vulnerability factor for both clinical and subclinical disordered eating (Stice, 2001; Striegel-Moore & Bulik, 2007). In fact, it is such an essential factor in both anorexia nervosa (AN) and bulimia nervosa (BN) that the DSM criteria include references to poor body image as a requirement for diagnosis (American Psychological Association, Diagnostic and Statistical Manual for Diagnosis [DSM-V], 2013). However, more recently, researchers have proposed that instead of assuming that negative appearance evaluation then predicts disordered eating, it is important to examine whether there is a reciprocal relation between the two (Bradford & Petrie, 2008).

Research shows that, similar to appearance evaluation, the late teen and early adult years appear to be a time of increased vulnerability of developing disordered eating in women. The peak onset for binging and purging symptoms is, on average, around ages 17 to 18 (Stice, Nathan, Shaw, & Jaconis, 2009). This also coincides with another

important event in late adolescence – the transition to college. There is evidence to suggest that dealing with such an important transition may actually increase vulnerability of developing more disordered eating symptoms, with more women in college reporting binge eating than those not in college (Rand & Kuldau, 1991). Although most college women do not meet criteria for an official eating disorder diagnosis, many experience serious symptoms. For example, Krahn and colleagues (2005) found that two-thirds of college women exhibited dieting behavior that was either classified as "intense" or put them at risk for developing a diagnosable eating disorder. Likewise, almost half of the same women reported engaging in binge eating and/or compensatory behaviors like vomiting, laxative use, or extreme exercise, at least once a week (Krahn, Kurth, Gomberg, & Drewnowski, 2005). Interestingly, Krahn and colleagues (2005) surveyed women ranging from freshmen to seniors, implying that not only is the transition to college a key period in the development of disordered eating, but that women throughout the college experience may be vulnerable.

Findings are mixed as to whether disordered eating changes across the course of college in women, and if so, whether those changes reflect improvement. Striegel-Moore and colleagues (1989) found that it was significantly more likely for women who had no history of dieting before starting college to report having dieted during freshman year. This was also the case for binging behaviors; however, the prevalence of a clinical presentation of an eating disorder did not change during freshman year (Striegel-Moore et al., 1989). This worsening of symptoms suggests that college may be an important time for the development of disordered eating symptoms, even if those symptoms do not meet clinical thresholds. In contrast, Berg and colleagues (2009) also assessed changes in

disordered eating symptoms in women in all four years of college and found that such symptoms significantly improved over time. However, only two months separated Time 1 and Time 2, and despite this improvement, 40% of college women still reported engaging in binge eating and/or compensatory behaviors at least once a week (Berg et al., 2009). Finally, a third study showed that disordered eating symptoms were stable over the course of the first 20 months of college and showed no significant changes (Cooley, Toray, Valdez, & Tee, 2013). These differences in the literature show that the first year may be a key point in the worsening of disordered eating, but that these symptoms may improve or level off later on in college.

Since college appears to be an important time for both negative appearance evaluation and disordered eating, it may also be a key time to evaluate the relation between the two. One way this relation can be understood is through the dual-pathway model (Stice, 2001). This model proposes that negative appearance evaluation leads to disordered eating in two possible ways. The first is that, for some women, physical appearance is central to self-evaluation and influences emotional states, so negative appearance evaluation leads to an increase in negative affect (Stice, 2001). In order to cope with those negative feelings, women may engage in disordered eating to distract themselves from what they are feeling. The second pathway suggests that for other women, negative appearance evaluation may increase dieting as an attempt to alter physical body size to bring it closer to the thin ideal supported by society (Stice, 2001). This dietary restriction may then lead to disordered eating. Both of these pathways assume directionality – that negative appearance evaluation leads to disordered eating;

however, recent research has sought to challenge this assumption and test whether the relation might be more reciprocal than first assumed.

Bradford and Petrie (2008) used a cross-lagged model to assess the stability and directionality of this dual pathway model in college women at the beginning (Time 1) and end (Time 2) of freshman year. In doing so, they found evidence of both unidirectional and reciprocal relations between body image, a latent variable created by combining appearance evaluation and body parts satisfaction, and internalization of society's thin ideal (Bradford & Petrie, 2008). They also found similar relations between body image and depressive affect, as well as between depressive affect and disordered eating (Bradford & Petrie, 2008). Interestingly, in all three cases, the variables were reciprocally related from Time 1 to Time 2, but the reciprocal nature of the relation disappeared when evaluating both variables simultaneously at Time 2 (e.g., internalization predicted poor body image at Time 2, but poor body image did not predict internalization; Bradford & Petrie, 2008). This suggests that these variables might initially have a reciprocal relation, but that directionality is established over time. Although these results discuss the mechanisms behind negative appearance evaluation and disordered eating instead of examining the relation directly, they imply that the connection between the two may be more complicated than once believed.

Appearance Evaluation in College Men

Although most of the research on appearance evaluation, disordered eating, and the relation between the two has focused on women, more recent literature has shown that problems in these areas are more prevalent in young men than was once believed. While it may be true that women experience more negative appearance evaluation than

men do, this finding also may be related to differences in what constitutes the ideal body for men and women (McCabe & Ricciardelli, 2004). Muscularity seems to be one key factor for men (Cafri et al., 2005), whereas being thin seems to be the key factor for women (Stice, 2001). This drive for muscularity may not be reflected on traditional appearance evaluation measures, which tend to focus on desire to be thin (Cafri et al., 2005).

It appears that these gender differences in ideal body type may emerge in adolescence (McCabe & Ricciardelli, 2004). During college, there is evidence to suggest than men are more split on how they view their bodies, with equal numbers of men wanting to lose weight as wanting to gain weight (McCabe & Ricciardelli, 2004). However, few longitudinal studies have been conducted to determine change in these ideals over time. One study did find that men's body dissatisfaction and weight preoccupation increased from ages 18 to 25, even after increases in bulimic symptoms had leveled off (Slane, Klump, McGue, & Iacono, 2014). These findings support the idea that appearance evaluation may worsen in men for longer than it does in women.

Disordered Eating in College Men

While some studies have shown that young men with appearance evaluation issues may also be susceptible to developing disordered eating, it appears that the two may be only weakly to moderately correlated (Ricciardelli & McCabe, 2004). Studies have shown that young men who experience negative appearance evaluation often diet to gain weight and increase muscle mass (Krochuk, Kreiter, Woods, Sinal, & DuRant, 1998). These behaviors may not be captured on a traditional measure of disordered eating, because they do not represent a typical presentation of restricting calories or

engaging in binging and compensatory behavior. It is possible that these problems with measurement may be one explanation for the weak correlation discussed above.

Although problems with measurement may make the detection of disordered eating in men more difficult, there is evidence to suggest that when traditional symptoms of disordered eating are present in men, they are less severe than in women (Ricciardelli & McCabe, 2004). Like in women, it appears that the late teen and early adult years may be a key point the development of disordered eating in men, but symptoms in men may follow a different trajectory than they do in women. Abebe and colleagues (2012) found that bulimic symptoms decreased in Norwegian men until about age 17 and then increased until age 20, before becoming stable. Thus it is possible that men experience increases in disordered eating for longer than women do. Despite the existence of gender differences, these studies show that both appearance evaluation and disordered eating affect both college women and men.

Moderating Factors

Despite findings linking appearance evaluation and disordered eating in college women and men, the fact still remains that many individuals who struggle with negative appearance evaluation do not develop serious disordered eating. The current study seeks to identify factors that may influence the strength of the relation between negative appearance evaluation and disordered eating. According to Luthar and colleagues (2000), such factors are considered "protective-stabilizing," when they attenuate the relation between a known vulnerability factor (i.e., negative appearance evaluation) and a negative outcome (i.e., disordered eating), or "vulnerable-reactive," when they strengthen that relation. The current study examines whether mindfulness may serve as a protective-

stabilizing factor and expressive suppression (i.e., a form of emotion dysregulation) may serve as a vulnerable-reactive factor in moderating the relation between appearance evaluation and disordered eating.

Mindfulness

Mindfulness, or the act of being accepting and aware of the present moment, has origins in ancient Buddhist traditions emphasizing the importance of conscious attention for the enhancement of well-being (Brown & Ryan, 2003). Mindfulness may be described as a more stable personality trait, but it may also be described as state, which is to be experienced (and practiced) moment by moment. Studies have shown that practicing mindfulness has both psychological and physiological benefits. For example, Mindfulness Based Stress Reduction (MBSR) techniques have been used to treat a variety of populations (Kabat-Zinn, 2003), and mindfulness also has been incorporated into standard treatments for depression and anxiety (Bohlmeijer, Prenger, Taal, & Cuijpers, 2010). Mindfulness also has been used in the treatment of binge eating disorder (BED) (Kristeller & Hallett, 1999), which is characterized by high levels of impulsivity (Dawe & Loxton, 2004) and difficulties with emotion regulation (Telch, Stewart, & Linehan, 2001).

Recent studies have found that mindfulness also may be associated with appearance evaluation. Lavender and colleagues (2012) examined mindfulness and appearance evaluation in college men and found that, controlling for BMI and negative affect, men who were more mindful had more positive appearance evaluation. They hypothesized that the open and accepting nature of mindfulness may reduce the likelihood of experiencing the rigid thoughts and behaviors that often characterize

negative appearance evaluation (Lavender, Gratz, & Anderson, 2012). Likewise similar results have also been found in women. Stewart (2004) found that mindfulness based treatment could be used to address the cognitive, evaluative, and emotional components of body size and shape evaluation in women.

Similarly, associations between mindfulness and disordered eating also have been found. Mindfulness has been associated with fewer overall disordered eating attitudes in college women, controlling for anxiety and depression symptoms (Lavender, Gratz, & Tull, 2011). Likewise, it has been associated with fewer bulimic symptoms in both college men and women, which suggests that those who are higher in mindfulness may be less likely to engage in disordered eating (Lavender, Jardin, & Anderson, 2009). Furthermore, mindfulness-based treatments for binge eating disorder have been successful at reducing the frequency of binges and the associated feelings of loss of control that accompany them (Baer, Fischer, & Huss, 2006).

It is possible that mindfulness may not only influence both appearance evaluation and disordered eating, but that it may also moderate the relation between the two. Although no studies to date have examined this possibility, Masuda and colleagues (2011) found that in 278 college men and women, more disordered eating cognitions (i.e., fear of weight gain, importance of being thin, and self-esteem based on eating habits) were associated with higher levels of disordered eating behaviors, but that individuals who were more mindful exhibited a weaker relation (Masuda, Price, & Latzman, 2011). Although Masuda and colleagues (2011) assessed the appearance investment component of body image more than the appearance evaluation component (as is being assessed in the current study), these findings lend support to the idea that mindfulness might serve as

a protective-stabilizing factor in the relation between appearance evaluation and disordered eating.

Emotion Regulation: Expressive Suppression

Emotion regulation is another factor that may influence the appearance evaluation and disordered eating relation, although it has not been explored to the same degree in the empirical literature. Theories of emotion regulation hinge on the idea that individuals assert control over their emotions and have influence on which emotions they experience and when they have those experiences (Gross, 1998). One facet of emotion regulation is expressive suppression, which is characterized by inhibiting a behavior in an attempt to modulate a negative response (Gross, 1998). Although expressive suppression may be necessary when it is important to inhibit an emotion, such as controlling anger, there is evidence to suggest that there might also be negative consequences (Chambers, Gullone, & Allen, 2009). For example, expressive suppression has been linked to both physical and mental health, from increased sympathetic nervous system response to depression (Gross & Levenson, 1997; Gross & John, 2003).

Although expressive suppression has not been tested in relation to appearance evaluation specifically, other general aspects of emotion regulation and body image have been examined. Sim and Zeman (2006) found that difficulties with emotion regulation significantly predicted poor body image in adolescent girls. Likewise, Lavender and Anderson (2010) assessed emotion regulation difficulties and poor body image in college men and found that the two were related, controlling for BMI and negative affect. It is possible that these findings can be extended to appearance evaluation. They suggest that

it is how negative feelings are processed and regulated that predicts appearance evaluation.

Expressive suppression also has been linked to both emotional and disordered eating. Evers and colleagues (2010) found that expressive suppression moderated the relation between sadness and food intake, such that participants in the sad condition were more likely to consume larger amounts of food if they scored high on expressive suppression. These results were also confirmed when tested experimentally, comparing those individuals who were instructed to suppress their feelings with those who were not (Evers, Stok, & Ridder, 2010).

These findings are not surprising given the important role of emotion regulation in the conceptual model of disordered eating. Researchers hypothesize that disordered eating behavior may be a maladaptive response to difficulties with emotion regulation (such as engaging in expressive suppression instead of processing feelings) (Stice, 2001). Although the empirical evidence for this theory is limited, some studies have shown that there might be a connection in clinical populations (Harrison, Sullivan, Tchanturia, & Treasure, 2010). Additionally, in a sample of college students, Lavender and colleagues (2009) tested the relation between both mindfulness and expressive suppression and disordered eating. They found that, controlling for BMI, both mindfulness and expressive suppression accounted for an additional 13% in the variance of bulimic symptoms in college women and 10% in the variance of bulimic symptoms in college men (Lavender et al., 2009). They then examined the contribution of mindfulness and expressive suppression separately and found that expressive suppression accounted for a greater percentage of the variance in bulimic symptoms in both men and women than

mindfulness did, such that increased expressive suppression was associated with more bulimic symptoms (Lavender et al., 2009).

It is also possible that expressive suppression may serve as a moderator of appearance evaluation and disordered eating. One study testing a similar hypothesis found that expressive suppression moderated the relation between body dissatisfaction and disordered eating, such that the relationship intensified for those with higher levels of expressive suppression (Ferreira, Palmeira, Trindade, & Catarino, 2015), supporting the idea that expressive suppression is a vulnerable-reactive factor. Together all of these studies indicate that, like mindfulness, expressive suppression may play a role in appearance evaluation, disordered eating, and the relation between the two.

The Current Study

The central premise of the current study is to clarify how appearance evaluation and disordered eating attitudes manifest across college and to highlight the role of mindfulness and expressive suppression in ameliorating or worsening disordered eating attitudes. This longitudinal study draws on students participating in a university-wide survey given at several points throughout their time in college. It seeks to examine appearance evaluation and disordered eating attitudes in college students, and to evaluate the relation between the two constructs, at three time points (Time 1: the beginning of the first year, Time 2: the end of the first year, and Time 3: the end of the fourth year). These time points were chosen because of the developmental significance of the first year of college and the increased likelihood of developing mental illness during this time (Arnett, 2000; Fisher & Hood, 1987), as well as the importance of assessing change from the beginning to the end of college to determine the developmental trajectory of appearance

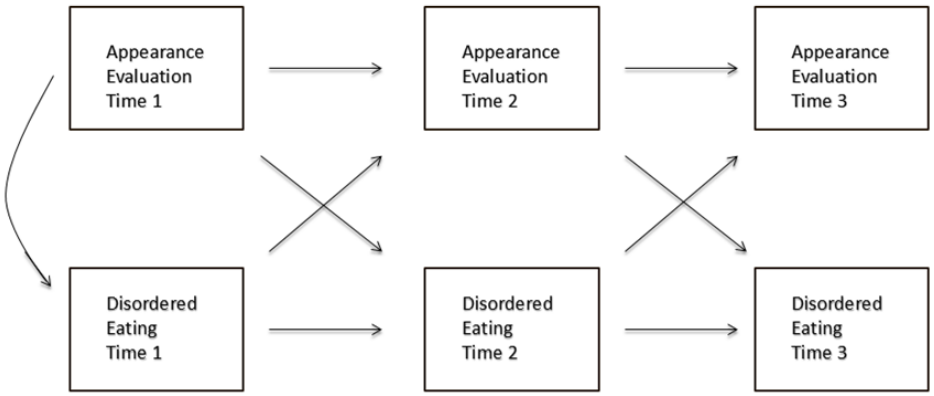
evaluation and disordered eating attitudes across the college years. Furthermore, this study also seeks to examine how mindfulness and expressive suppression might impact the relation between appearance evaluation and disordered eating attitudes.

Specific Aims and Hypotheses

Aim 1. Examine the trajectories of appearance evaluation and attitudes across college for both women and men. Hypothesis 1: Overall, for women it is expected that appearance evaluation and disordered eating attitudes will worsen between the beginning of first year (Time 1) and the end of first year (Time 2) and then become stable by the end of fourth year (Time 3). For men, it is also expected that appearance evaluation and disordered eating attitudes will worsen from Time 1 to Time 3.

Aim 2. Identify the directionality of the relation between appearance evaluation and disordered eating attitudes across college. Hypothesis 2: For women, reciprocal relations between appearance evaluation and disordered eating attitudes are expected, such that appearance evaluation at Time 1 will predict disordered eating attitudes at Time 2, and disordered eating attitudes at Time 1 will predict appearance evaluation at Time 2. The reciprocal nature of this relation will carry on throughout college. As can be seen in Figure 1, for men, reciprocal relations also will exist between appearance evaluation and disordered eating attitudes, but the model will be significantly different for men than it is for women, and the strength of those relations will be weaker for men than for women.

Figure 1: Proposed directionality of appearance evaluation and disordered eating across college



Aim 3: Examine the moderating effects of mindfulness and expressive suppression on appearance evaluation and disordered eating attitudes. Hypothesis 3a: Mindfulness at Time 1 will moderate the relation between appearance evaluation at Time 1 and disordered eating attitudes at Time 2, such that the relation is weaker for individuals with higher levels of mindfulness, when controlling for depressive symptoms and BMI. A three-way interaction also will be probed to determine if this relation is different for men and women. Hypothesis 3b: Expressive suppression at Time 1 will also moderate the relation between appearance evaluation at Time 1 and disordered eating attitudes at Time 2, such that the relation is stronger for individuals with higher levels of expressive suppression, when controlling for depressive symptoms and BMI. A three-way interaction also will be probed to determine if this relation is different for men and women.

Figure 2: Proposed two-way interaction of mindfulness on the relation between appearance evaluation and disordered eating

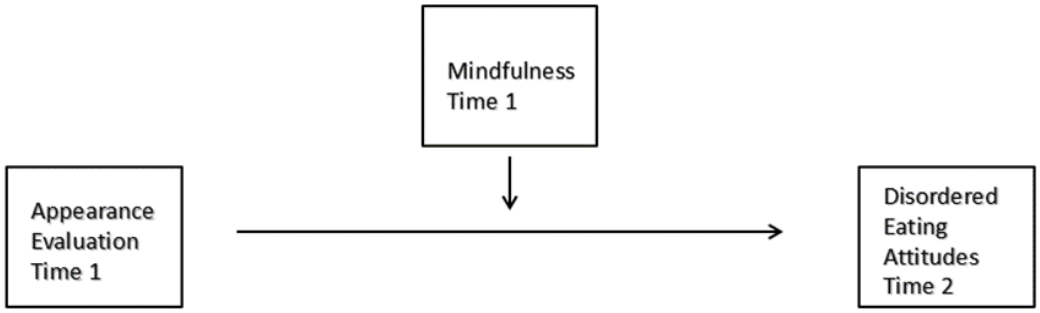


Figure 4: Proposed three-way interaction of mindfulness and gender on the relation between appearance evaluation and disordered eating

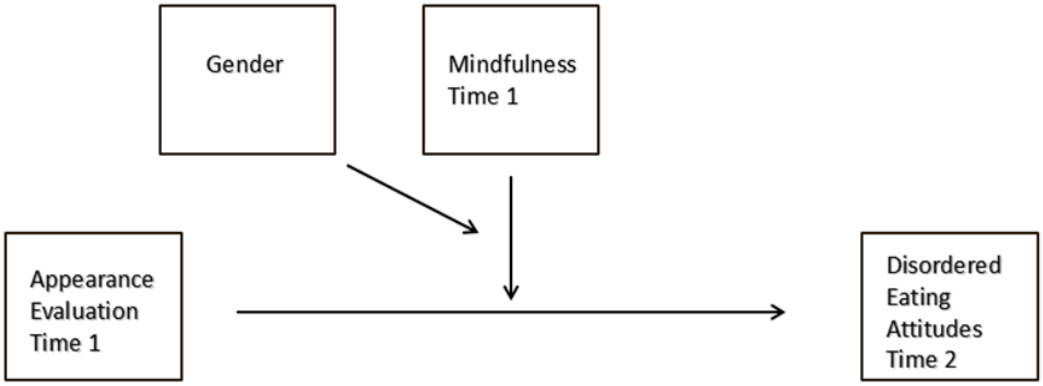


Figure 4: Proposed two-way interaction of expressive suppression on the relation between appearance evaluation and disordered eating

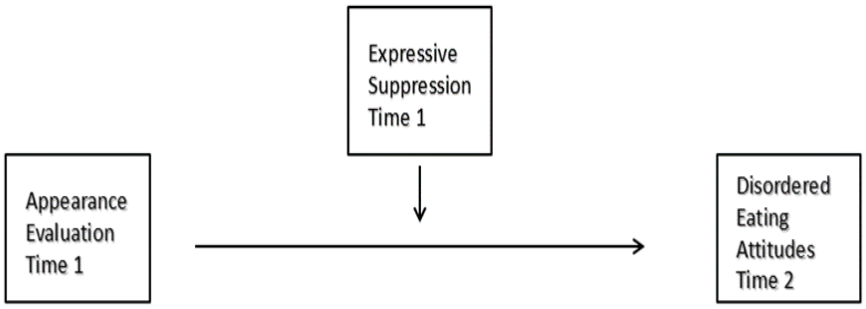
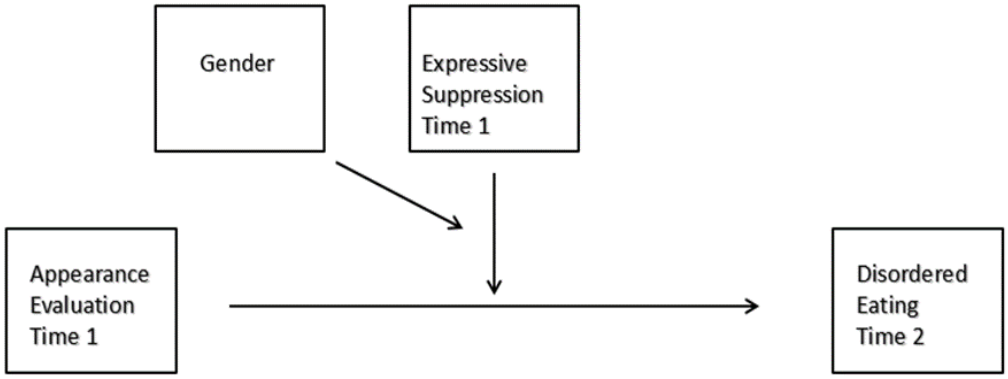


Figure 5: Proposed three-way interaction of expressive suppression and gender on the relation between appearance evaluation and disordered eating



CHAPTER TWO

METHOD

Study Design and Procedure

The current study utilized a longitudinal research design assessing emerging adults on a variety of measures about psychological and social adjustment during the college years. The data used for this project were collected at three time points, including the beginning and end of the first year, and the end of the fourth year. For Time 1 administration, one week before enrollment, all incoming first-year students received an email inviting them to complete the online survey. The survey also was advertised during orientation events, on flyers throughout the campus, and via promotional emails. The survey was available for two weeks, took approximately 20-45 minutes to complete, and after completion, students were entered into a drawing to win various prizes. Students who had completed the survey at Time 1 were then invited to complete another survey at each subsequent time point.

Participants

Participants in this study were taken from students assessed from 2011-2015. Students were included if they completed the survey at Time 1 and at Time 2. Additionally, further data was taken from a smaller subset of students (i.e., full completers) who also went on to complete the survey at Time 3, the end of the fourth year.

The overall sample includes 859 students (70.6% female, 73.2% Caucasian, M_{age} = 18.51 at Time 1). The subsample of full completers includes 239 students at the same university. Study participants at Time 1 differed from nonparticipants in gender, such that study participants were more likely to be female $\chi^2(1) = 10.63$, $p = .001$. They also differed from nonparticipants in race/ethnicity, such that participants were less likely to be Asian, Hispanic, or Puerto Rican $\chi^2(9) = 112.11$, $p < .001$. Study participants at Time 3 differed from nonparticipants in gender, such that study participants were more likely to be female $\chi^2(1) = 28.06$, $p < .001$. They also differed from nonparticipants in race/ethnicity, such that participants were more likely to be White $\chi^2(9) = 35.56$, $p < .001$. At Time 1, participants in this study differed from non-completers (i.e., those who completed the survey at some, but not all three, time points), in gender, such that study participants were more likely to be female $\chi^2(1) = 15.72$, $p < .001$. They also differed from nonparticipants in race/ethnicity, such that participants were more likely to be White $\chi^2(9) = 118.77$, $p < .001$.

Measures

Demographic Information

Demographic information, such as gender, was collected at each time point of survey administration. With student permission, survey data also was linked to other demographic information about the student, such as ethnicity, graduating high school class rank, and standardized test scores through the university research office.

Body Mass Index (BMI)

BMI was calculated at Time 1 using participants' self-reported height and weight according to the English BMI formula (Weight in pounds/(Height in inches*Height in inches)) * 703.

Appearance Evaluation

Appearance evaluation was assessed with the seven-item Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire-Appearance Scales (MBSRQ-AS; (Brown et al., 1990; Cash, 2000). This scale reflects global evaluations of appearance using a Likert scale ranging from 1 (*definitely disagree*) to 5 (*definitely agree*). Items include "Most people would consider me good looking" and "I like the way my clothes fit me". For this study, the scale is scored such that higher scores represent more body dissatisfaction. The scale has yielded adequate internal consistency ($\alpha = .83$) (Cash, Melnyk, & Hrabosky, 2004). It also yielded good internal consistency across time points in the current study ($\alpha = .91$-$.94$).

Disordered Eating Attitudes

Disordered eating attitudes were assessed with a shortened version of the Eating Attitudes Test-40 (Garner & Garfinkle, 1979). The 12-item Eating Attitudes Test identifies individuals who exhibit problematic eating behaviors and are likely to be at risk for an eating disorder (EAT-12; Lavik, Clausen, & Pedersen, 1991). It measures symptom severity with Likert Scales ranging from 1 (*Always*) to 6 (*Never*). Sample items include, "I am preoccupied with the desire to be thinner" and "I vomit after I have eaten". For this study, responses are recoded into a range of 0 (*no*/*seldom*) through 3 (*always*), such that the response reflecting the most disordered attitudes (may be a response of

either “Always” or “Never” depending on the question) earns a score of 3. The adjacent two responses then earn a score of 2, the next response earns a score of 1, and the three choices opposite to the most “disordered” response receives no score (0). The measure yields a total score and scores on three subscales: dieting, bulimia, and food preoccupation and oral control, and higher scores indicate more disordered eating attitudes. On the longer form EAT-26, the cut off score for high risk for disordered eating is a total score of 20 (Garner, Olmsted, Bohr, & Garfinkel, 1982), and similar criteria yield a cut-off score for the EAT-12 of 9.5. The EAT-12 has demonstrated adequate reliability across studies (α = .70) (Kansi, Wichstrøm, & Bergman, 2003). This scale yielded adequate internal consistency in the current study across time points (α = .78 - .88).

Mindfulness

Mindfulness was assessed with the 15-item Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003). This scale reflects the presence or absence of focus and attention on the present moment. It uses a Likert scale ranging from 1 (*almost always*) to 6 (*almost never*). Items include “I could be experiencing some emotion and not be conscious of it until some time later” and “I forget a person’s name almost as soon as I’ve been told it for the first time.” Higher scores indicate more mindfulness. This scale has demonstrated adequate internal consistency (α = .83) (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). This scale also yielded good internal consistency in the current study across time points (α = .91-.94).

Expressive Suppression

Expressive suppression was assessed with the 10-item Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ reflects two of the major aspects of emotion regulation, cognitive reappraisal and expressive suppression. It uses a Likert scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Suppression items include "I keep my emotions to myself." Higher scores indicate higher levels of expressive suppression. The scale has demonstrated adequate internal consistency ($\alpha = .80$) (Gross & John, 2003). This scale also yielded adequate internal consistency in the current study across time points ($\alpha = .77$-$.83$).

Depressive Symptoms

Depressive symptoms were assessed with the 7-item depression subscale of the 21-item Depression Anxiety Stress Scales (DASS-21; Henry & Crawford, 2005). The DASS-21 measures negative affect by specifically assessing depressive symptoms, anxiety, and stress, and is a short form version of the original 42-item DASS (Crawford & Henry, 2003). It uses a Likert scale ranging from 1 (*did not apply to me at all*) to 4 (*applied to me very much or most of the time*) to evaluate how much each statement represents the way the participant felt in the past week. Items from the depression scale include "I felt I wasn't worth much as a person," and higher scores indicate more depressive symptoms. The scale has demonstrated adequate internal consistency ($\alpha = .88$) (Henry & Crawford, 2005), and also yielded adequate internal consistency in the current study ($\alpha = .81$-$.90$).

CHAPTER THREE

RESULTS

All data was first examined for missing values. If a participant completed at least 80% of the items in a given measure, totals for that measure were calculated. The data was then examined for skewness and outliers (Fidell & Tabachnick, 2003). Body-mass index (BMI), the depression subscale of the DASS, and the disordered eating attitudes (EAT-12) scale were all positively skewed (above +1.5). To correct for this, a square root transformation was used. Given that the EAT-12 had a minimum of zero, a constant was added to all values before the square root transformation was completed. After transformation, all variables had skewness statistics between -1.5 and +1.5. For Aims 1 and 3, the transformed variables were used to complete the analysis. For Aim 2, the original data was used and statistical tests designed for non-normal data were conducted. Descriptive statistics were also calculated using the non-transformed data. A power calculation was also performed and found that a sample size of 200 would be required to achieve 80% power to detect an R2 of .02 (Hintze, 2011). Because of this, all three years of data (n=239) were used to test Aims 1 and 3. However, because a sample size that is approximately four times as large is required to achieve 80% power to detect three-way interaction (in this case n=800), our full sample of 239 students was underpowered to test Aim 3 (Heo & Leon, 2010). Because of this, we used the subsample of first through third year completers (n=859).

Means, standard deviations, and correlations for study variables are listed in Table 1. At Time 1, participants had BMI scores in the normal/healthy weight range overall (*m* = 23.15), 92% of participants scored below the "at-risk" point of 9.5 for disordered eating attitudes, and 97% of participants fell within the normal range on depressive symptoms, indicating that they did not endorse elevated levels of such symptoms. As can be seen in Table 1, Time 1 BMI was negatively correlated with appearance evaluation at Time 1, 2, and 3, indicating that those with higher BMIs at the beginning of college had more disordered eating attitudes later in college. Depressive symptoms at Time 1 were negatively correlated with both appearance evaluation and mindfulness at all three time points, and were positively correlated with disordered eating attitudes and expressive suppression at all time points. These findings indicate that individuals who had more depressive symptoms at the beginning of college also felt worse about their appearance and had more disordered eating attitudes both concurrently and later in college. These individuals also tended to be less mindful and endorse more expressive suppression strategies later in college.

As shown in Table 2, gender differences in disordered eating attitudes and appearance evaluation were significant at Time 1 and Time 2, such that women endorsed more disordered eating attitudes than men and felt worse about their appearance than men did. In contrast, men had both significantly higher levels of expressive suppression than women (Time 1 & Time 2) and significantly higher levels of mindfulness (Time 2), which is curious given that expressive suppression and mindfulness are negatively correlated with one another at these time points. However gender differences were less pronounced at Time 3, when only expressive suppression significantly differed by gender

(see Table 2). This may be due to actual changes over time or to the decrease in sample size and power from Time 1 to Time 3.

Table 1. Descriptive information and correlations among variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. BMI	--													
2. Depressive Symptoms	-.03	--												
3. T1 AE	-.37**	-.32**	--											
4. T1 EAT-12	.05	.34**	-.38**	--										
5. T1 Mindfulness	.05	-.39**	.27**	-.24**	--									
6. T1 Expressive Suppression	.03	.25**	-.20**	.14**	-.30**	--								
7. T2 AE	-.29**	-.20**	.72**	-.34**	.17**	-.14**	--							
8. T2 EAT-12	.11**	.20**	-.31**	.57**	-.16**	.07*	-.39**	--						
9. T2 Mindfulness	.03	-.27**	.21**	-.19**	.54**	-.19**	.23**	-.34**	--					
10. T2 Expressive Suppression	.01	.18**	-.17*	.09*	-.21**	.55**	-.19**	.17**	-.29**	--				
11. T3 AE	-.28**	-.26**	.56**	-.26**	.15*	.01	.66**	-.33**	.20**	-.03	--			
12. T3 EAT-12	.15*	.13	-.18**	.32**	-.09	-.01	-.29**	.38**	-.27**	.04	-.38**	--		
13. T3 Mindfulness	-.07	-.27**	.26**	-.18**	.43**	-.13**	.31**	-.23**	.57**	-.14*	.36**	-.43**	--	
14. T3 Expressive Suppression	-.00	.15*	-.06	.09	-.15*	.43**	-.13*	.05	-23**	.53**	-.20**	.11	-.29**	--
Mean	23.15	2.24	23.98	3.19	65.15	14.41	23.43	4.04	61.41	15.17	24.17	3.63	61.65	14.14
Standard Deviation	3.96	3.07	5.92	4.30	12.92	4.89	6.23	5.41	14.33	5.01	6.20	5.10	14.63	5.23
Range	15-40	0-21	7-35	0-36	15-90	4-28	7-35	0-36	15-90	4-28	7-35	0-36	15-90	4-28

* $p < 0.05$ level; ** $p < 0.01$ level.

Table 2. Means and standard deviations by gender

	Time 1						Time 2				Time 3			
	BMI	DAAS	AE	EAT	MAAS	ERQ	AE	EAT	MAAS	ERQ	AE	EAT	MAAS	ERQ
Men														
Mean	23.71	2.16	25.07	2.23	66.11	15.69	24.65	2.87	62.91	16.08	25.03	3.86	60.88	16.30
SD	3.97	3.47	5.95	3.35	13.54	4.92	6.31	4.74	14.32	4.79	6.54	7.07	16.98	5.49
Women														
Mean	22.90	2.28	23.46	3.64	64.71	13.81	22.86	4.58	60.70	14.75	23.91	3.55	61.89	13.44
SD	3.92	2.87	5.85	4.62	12.60	4.75	6.09	5.62	14.29	5.06	6.08	4.31	13.84	4.96
T score	2.79**	-0.53	3.71**	-5.07**	1.48	5.35**	3.93**	-4.63**	2.10*	3.66**	1.21	0.41	-0.46	3.73**

*$p < .05$
**$p < .01$

DASS – Depressive symptoms (Depression and Stress Scales), EAT = Disordered eating attitudes (Eating Attitudes Test – 12 item version), AE = Appearance evaluation (Multidimensional Body Self-Relations Questionnaire), MAAS = Mindfulness (Mindfulness Attention Awareness Scale), ERQ = Expressive suppression (Emotion Regulation Questionnaire)

Appearance Evaluation and Disordered Eating Attitudes across the College Years

To evaluate the impact of time and gender on appearance evaluation and disordered eating attitudes, two separate repeated measures analyses of variance (ANOVAs) were conducted using SPSS (Version 22). For the first ANOVA model, appearance evaluation scores were entered in as the dependent variable, and for the second model, disordered eating attitude scores were entered in as the dependent variable. For both models, time was a within subjects factor and gender was a between subjects factor (male, female). Time 1 BMI and depressive symptom scores were also entered into both models as covariates. For appearance evaluation, no main effects or interactions were found suggesting that appearance evaluation did not significantly change across the four years of college. For disordered eating attitudes, analyses revealed a significant main effect of gender, such that women had higher levels of disordered eating attitudes than men even after accounting for BMI and depressive symptoms, $F(1,234) = 4.18$, $p = .04$.

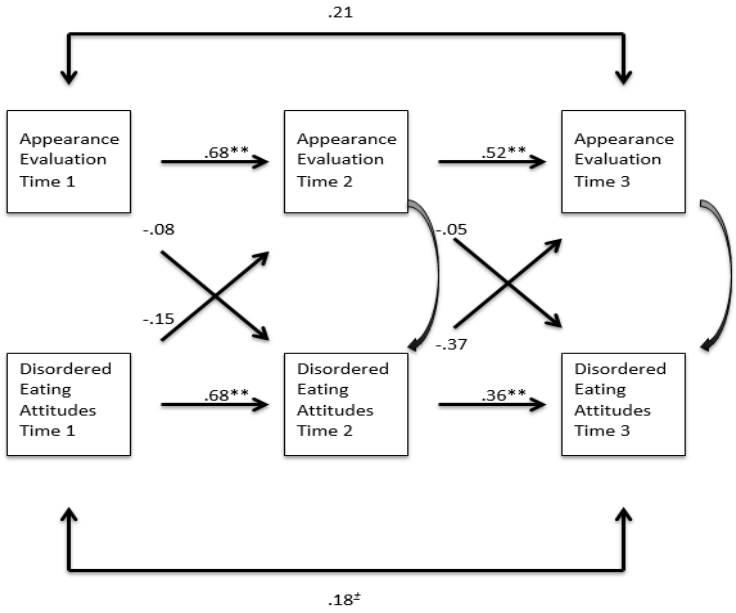
In addition to performing separate ANOVAs for appearance evaluation and disordered eating attitudes, longitudinal path modeling was conducted using MPlus (Version 7.2) to assess the nature of the relation between the two variables across the college years. Several competing models were fitted to the data in a number of steps. Due to the high/significant correlation between appearance evaluation and disordered eating attitudes (see Table 1), all models included cross-lagged structural paths from Time 1 appearance evaluation to Time 2 disordered eating attitudes and Time 2 appearance evaluation to Time 3 disordered eating attitudes. In order to also assess reciprocal relations, the inverse was also tested (e.g., Time 1 disordered eating attitudes

to Time 2 appearance evaluation). The first model (M_1) assumed no autoregressive effects between the two nonadjacent time points (i.e., second-order autoregressive effects between Time 1 and Time 3). The second model (M_2) relaxed these assumptions and allowed second-order autoregressive effects to be present. Model fit indices indicated a bad fit of M_1 to the data X^2 (12) = 62.04, p < .001, and indicated that M_2 had an acceptable fit X^2 (4) = 4.66, p = .32, RMSEA = .04, CFI = .99.

Once the overall model of best fit was identified, two additional models were compared – one that allowed for differences between men and women to exist (M_3) and one that constrained values to be equal for both genders (M_4). A Satorra-Bentler chi-square difference test was conducted to compare M_3 to M_4. This test yields a chi-square difference statistic (TRd) that is scaled for non-normal data. Results revealed that constraining the values to be equal for men and women did not significantly worsen the fit of the model, TRd=16.77, df = 12, p >.05. This suggests that the relation between appearance evaluation and disordered eating attitudes across time was not significantly different for men than it was for women. Thus, the more constrained model (M_4), as seen in Figure 6, was considered further. Results show that the autoregressive effects were significant for both appearance evaluation and disordered eating attitudes between Time 1 and Time 2 and between Time 2 and Time 3, which indicates that the two constructs remained stable during those time periods. However, the non-significant second-order autoregressive coefficient indicates that when non-adjacent time points (Time 1 to Time 3) were evaluated, individual differences in disordered eating attitudes did not remain stable (b=0.18, p = .12).

In addition to assessing the autoregressive effects of appearance evaluation and disordered eating attitudes, cross-lagged effects of the constrained model (M_4) were also evaluated (see Figure 6). While analyses did not reveal any significant cross-lagged coefficients, the lagged effect of appearance evaluation at Time 1 on disordered eating attitudes at Time 2 approached significance ($p = .061$). This indicates that those with less favorable appearance evaluation scores in the beginning of the first year had more problems with disordered eating attitudes at the end of the first year, even when Time 1 disordered eating attitudes were taken into account. The reciprocal relation, between disordered eating attitudes at Time 1 and appearance evaluation at Time 2, also approached significance ($p = .071$), indicating that more problems with disordered eating attitudes at the beginning of the first year were associated with more problems with appearance evaluation at the end of the first year, accounting for Time 1 appearance evaluation. Additionally, the corresponding coefficients indicate that disordered eating attitudes at Time 1 had a larger effect on appearance evaluation at Time 2 than appearance evaluation at Time 1 had on disordered eating attitudes at Time 2 ($b = -0.15$ vs. -0.08). However, M_4 shows that the majority of cross-lagged coefficients are smaller than the autoregressive coefficients, which demonstrates that cross-lagged effects accounted for a smaller amount of individual differences in the model than what was accounted for by the autoregressive effects.

Figure 6. Constrained longitudinal path analysis model



**p <.01 = remained stable
$^{\pm}p$ > .05 = did not remain stable

The Moderating Role of Mindfulness and Expressive Suppression

To test the impact of mindfulness on appearance evaluation and disordered eating attitudes, a series of hierarchical linear regression models were analyzed using SPSS (Version 22). In each model, Time 2 disordered eating attitude scores were regressed onto Time 1 appearance evaluation scores, after first entering Time 1 depressive symptoms, BMI, and disordered eating attitude scores. In Step 2, gender and Time 1 mindfulness scores were entered. In the third step, all two-way interaction terms, including Time 1 appearance evaluation x mindfulness, were entered. Finally, all three-way interaction terms were entered in the final step, including appearance evaluation x mindfulness x gender. As shown in Table 3, appearance evaluation at the beginning of

the first year was a significant predictor of disordered eating attitudes at the end of the first year. Gender was also a significant predictor (i.e., women had more disordered eating attitudes than men). In contrast, mindfulness at the beginning of the first year was not a significant predictor of disordered eating attitudes at the end of the first year, and it did not significantly moderate the relation between appearance evaluation and disordered eating attitudes. Furthermore, there were also no significant three-way interactions, indicating that the impact of mindfulness on the relation between disordered eating attitudes and appearance evaluation did not differ by gender.

An identical set of hierarchical regression analyses were conducted to test the impact of expressive suppression on appearance evaluation and disordered eating attitudes by replacing mindfulness scores with expressive suppression scores. As can be seen in Table 3, results of the second model were consistent with the first and revealed that Time 1 expressive suppression was not a significant predictor of Time 3 disordered eating attitudes and not a significant moderator of the relation between appearance evaluation and disordered eating attitudes. This suggests that, in a nonclinical sample, suppressing one's thoughts and emotions does not significantly impact disordered eating attitudes. Furthermore, there was no significant three-way interaction of appearance evaluation x expressive suppression x gender, which implies that the impact of expressive suppression on disordered eating attitudes also does not differ by gender.

Table 3. Predicting disordered eating attitudes at the end of first year from appearance evaluation, mindfulness, and expressive suppression

Mindfulness

Step	Predictors±	B	SE B	β	Adjusted R^2	R^2 change
1	EAT	.67	.03	.57**		
	BMI	.20	.07	.08**	.	
	DASS	.03	.04	.02	.35	.35***
2	AE	-.02	.01	-.10**		
	MAAS	-.00	.00	-.02		
	Gender	.17	.06	.08**	.36	.01***
3	AE x MAAS	.00	.00	.02		
	AE x Gender	-.00	.01	.01		
	MAAS x Gender	.00	.01	.04	.36	.00
4	AE x MAAS x Gender	.00	.00	.09	.36	.00

Expressive Suppression

Step	Predictors±	B	SE B	β	Adjusted R^2	R^2 change
1	EAT	.67	.03	.57**		
	BMI	.20	.07	.08**		
	DASS	.03	.04	.02	.35	.35***
2	AE	-.02	.01	-.10**		
	ERQ-S	-.00	.00	-.01		
	Gender	.17	.06	.08**	.36	.01***
3	AE x ERQ	.00	.00	.00		
	AE x Gender	-.00	.01	-.02		
	ERQ-S x Gender	-.02	.01	-.08	.36	.00
4	AE x ERQ x Gender	.00	.00	.01	.36	.00

± All predictors assessed at Time 1

**$p < .01$

***$p < .001$

Note: Table 3 represents analyses performed on data that has undergone square root transformation

DASS – Depressive symptoms (Depression and Stress Scales), EAT = Disordered eating attitudes (Eating Attitudes Test – 12 item version), AE = Appearance evaluation (Multidimensional Body Self-Relations Questionnaire), MAAS = Mindfulness (Mindfulness Attention Awareness Scale), ERQ = Expressive suppression (Emotion Regulation Questionnaire)

CHAPTER FOUR

DISCUSSION

The primary aim of this study was to extend previous research by investigating the nature of appearance evaluation and disordered eating attitudes across the college years. This study sought to examine whether appearance evaluation and disordered eating attitudes differ by gender and to assess whether protective-stabilizing and vulnerable-reactive factors may influence the relation between the two variables to help explain why only some college students who deal with appearance evaluation issues go on to develop disordered eating. The general finding was that while appearance evaluation was stable across the college years, disordered eating attitudes increased during that time. Furthermore, appearance evaluation and disordered eating attitudes were predictors of one another from the beginning to the end of college. Although women displayed less favorable appearance evaluation and more disordered eating attitudes than men, the relation between the two constructs was consistent across genders.

The results of this study suggest that while appearance evaluation and disordered eating attitudes are indeed related to one another, they have different trajectories and tend to change at different times. Consistent with prior findings, the relative stability of appearance evaluation seen in the longitudinal path analysis model supports the idea that problems with appearance tend to peak before college begins and then remain stable (Tiggemann, 2004). In contrast, disordered eating attitudes worsened between the beginning and the end of college. This may be because the transition to college is often

accompanied by increased responsibility, including for food choices (Nelson et al., 2008). Thus an individual who is dissatisfied with his or her appearance may, for the first time, be able to eat as much or as little as desired outside of the watchful eye of a parent or guardian. Social influences may also play a role, as peer-influenced disordered eating has been shown to be problematic in college and beyond (Keel, Forney, Brown, & Heatherton, 2013). While prior research has mainly focused on disordered eating attitudes during the transition to college and the early college years (Cooley et al., 2013; Striegel-Moore et al., 1989), the current study extends the existing literature in this area by investigating changes across the entire college period. These findings suggest that if disordered eating attitudes continue to worsen beyond the first year, intervention should also be extended beyond this point (Taylor et al., 2006). One unexpected finding from the current study is that even though men had significantly fewer disordered eating attitudes and felt more positively about their appearance than women did, the longitudinal path analysis revealed no significant difference in the trajectories of appearance evaluation and disordered eating attitudes between males and females. However, because the current study assessed trajectories of appearance evaluation and disordered eating attitudes, it is possible that while levels may differ between men and women in general, both groups experience similar shifts at similar times.

The results of the current study also contribute to an understanding of the relation between appearance evaluation and disordered eating attitudes. As expected, appearance evaluation was a significant predictor of disordered eating attitudes across the four years of college. However, the reciprocal relation also approached significance, with

disordered eating attitudes serving as a predictor of appearance evaluation issues on a trend level. These results extend Bradford and Petrie's (2008) model, by assessing the relation between appearance evaluation and disordered eating attitudes directly and by extending the assessment period beyond the freshman year. The reciprocal nature of appearance evaluation and disordered eating attitudes is consistent with the theory that disordered eating attitudes lead to increased scrutiny of the body, which in turn leads to less satisfaction with it (Stice, 2001). Thus appearance evaluation and disordered eating attitudes may work together in a vicious cycle, in which both issues influence one another.

Because a key factor in this theory is that negatively scrutinizing one's body instead of accepting both its strengths and flaws is problematic, it was expected that mindfulness, the act of being accepting and aware of the present moment, would serve as a protective-stabilizing factor against developing disordered eating attitudes. Interestingly, the results did not support this finding, instead revealing that mindfulness was not a significant predictor of disordered eating attitudes and also did not moderate the relation between appearance evaluation and disordered eating attitudes. Likewise, it was expected that the act of suppressing one's feelings would be positively related to disordered eating attitudes. However, this was also not the case, and expressive suppression also had no significant moderation effects. These findings are contrary to prior research showing that both mindfulness and expressive suppression do play a role in both appearance evaluation and disordered eating attitudes. For example, Lavender and colleagues (2011, 2012) found that mindfulness was associated with lower levels of

disordered eating attitudes and fewer problems with appearance evaluation in college men and women. However, both of these studies were cross-sectional in nature and did not evaluate the relation over time. In the current sample, mindfulness levels fell from the beginning to the end of the first year. It is possible that the lower levels of mindfulness at the end of the first year (when disordered eating attitudes were assessed) superseded any effects that prior levels of mindfulness would have had.

Prior studies have also found expressive suppression to be predictive of eating pathology in college students (Lavender et al., 2009), and a moderator of the relation between body image and disordered eating in adolescents and young adults (Ferreira et al., 2015). However, in both of these cases, disordered eating and body image were both defined and assessed differently than they were in the current study. Additionally, both of these studies were also cross-sectional in nature. Given that levels of expressive suppression were much more consistent in the current sample across time, it is likely that while expressive suppression is predictive of more severe eating pathology (i.e., bulimia), it may not be strongly related to disordered eating attitudes.

Limitations and Directions for Future Study

The benefits gained by the longitudinal nature of this study were accompanied by high attrition rates. Because of this, it was impossible to capture the full span of the four years of college for most participants. For example, the longitudinal path analysis was conducted with the subsample of full completers, where there were only 58 men. Thus it is likely that it was underpowered to detect differences between men and women, which may have accounted for the null findings. Likewise, high attrition rates also limited the

number of time points that could be included in the current study. Interestingly, changes in disordered eating attitudes were not detected when evaluating our three time points discretely, and could only be seen when looking at the four years of college as a whole (i.e., change from the beginning of college to the end of college). This may mean that while disordered eating attitudes were similar between Time 1 and Time 2 and then again between Time 2 and Time 3, changes may have occurred between each individual measurement. Although the length of time between Time 1 and Time 2 was only one year, three years separated Time 2 and Time 3. It is possible that disordered eating attitudes changed during that time, but those changes were not captured because of the large amount of time between measurements.

In addition to high attrition rates, this study is also constrained by the limitations of the EAT-12, which was used to assess disordered eating attitudes. The EAT-12 was normed using a sample of female adolescents (Lavik et al., 1991), which calls into question the validity of the scale when used to assess men. Likewise, although the EAT-12 can technically be broken down into subscales for bulimia and for dieting, the brevity of the measure makes it such that each subscale is only composed of two to three questions. Additionally, when these subscales were evaluated, they did not have good reliability and consequently were not used in the current study. Because of this, it was not possible to distinguish between participants who may have had high levels of restriction versus those with high levels of bulimic symptoms. Given the variability in presentation of bulimia nervosa and anorexia nervosa, it is possible that these two groups might have differed greatly on many of the other measures assessed.

Despite some of its limitations, the EAT-12 also has its strengths. For example, it was derived by using twelve of the most clinically significant and relevant items from the longer-form version of the EAT, which has been validated in samples of both men and women (Garfinkel & Newman, 2013). While there are concerns that the EAT may be assessing different constructs of disordered eating in men than it is in women, this is likely more because of the problems with the definition of disordered eating across genders than with any one specific measure (Engelsen & Hagtvet, 1999). Furthermore, although the EAT-12 is not a diagnostic assessment, such an assessment was not necessary given the low levels of endorsement of any type of disordered eating attitudes in the current study.

The MBSRQ, the appearance evaluation measure used in this study, also has its strengths and limitations. Because it has been well validated and shown to be sensitive to the body image concerns of both men and women (Brown et al., 1990), it is possible to compare scores across genders. However, because the measure is used for both men and women, it may not capture some of the specific concerns of male body image, such as drive for muscularity. Future studies should consider that the presentation of disordered eating attitudes and poor appearance evaluation may look different in men than in women, and more assessments should be created that take these differences into consideration.

In addition to evaluating body image and disordered eating differently, future studies should continue to examine the timing of changes in disordered eating attitudes during the course of college. The current study did not measure disordered eating

attitudes at any point between the end of the first and the end of the fourth years. Future studies should assess the two variables at more time points to elucidate the period in which the shift does occur. This information would help to inform interventions that could target key periods of risk.

Finally, this study evaluates a nonclinical population. Most participants in our sample felt positively about their appearance, on average, and had appearance evaluation scores that were not classified as problematic (Cash & Henry, 1995). Likewise, while change was observed in disordered eating attitudes over the course of college, participants in this study started out with very low levels, therefore it is important to note that while these changes were significant, they were not large in magnitude. Given these sample characteristics, future research should assess whether mindfulness and expressive suppression may weaken or strengthen the relation between appearance evaluation and disordered eating attitudes in clinical populations by using more sensitive measures of both body dissatisfaction and disordered eating to reflect the more complex presentation of these populations. If they are found to be moderators, this could also be used to inform treatment to include elements of mindfulness and accepting and tolerating negative emotions instead of suppressing them.

Implications

The results of this study show that while appearance evaluation and disordered eating attitudes may be related, they follow different trajectories and may have differing influences on disordered eating attitudes. Even among a nonclinical population, disordered eating attitudes worsened over the course of college, a change that occurred

beyond the first year. These findings are key for developing effective interventions to target college students in order to prevent disordered eating attitudes from developing into more clinically significant issues. In contrast, the stability of appearance evaluation over the course of college supports the idea that interventions seeking to improve appearance evaluation may be better served if implemented before college begins. Finally, this study also calls into question the lasting influence of mindfulness across time, and indicates the need to continue studying the way that certain personality characteristics (i.e., mindfulness) or coping strategies (i.e., expressive suppression) may impact the way that individuals handle body dissatisfaction over time. Overall, the results of this study demonstrate the importance of focusing on the college years as a key time of intervention and change that may help reduce disordered eating attitudes.

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VITA

Amy Heard is a doctoral student at Loyola University Chicago studying clinical psychology. She received her B.A. in Psychology and Spanish from Washington University in St. Louis in 2011. During her time at Washington University, she became interested in eating disorders and obesity, and participated in research studying such issues. After graduating, Ms. Heard conducted research at the Yale University Rudd Center, extending her work on obesity to study unhealthy food marketing to children. Since starting graduate school at Loyola, Ms. Heard has been a member of Dr. Amy Bohnert's Activity Matters Lab. As a part of this lab, Ms. Heard has continued to work on projects highlighting her different interests, including childhood obesity and disordered eating. While at Loyola, Ms. Heard was also awarded the National Science Foundation Graduate Research Fellowship, which will allow her to conduct independent research combining her interests in eating behaviors and food marketing. Work on all of these projects has resulted in numerous poster and paper presentations, and a number of publications accepted, in preparation, or under review in peer-reviewed journals.

THESIS APPROVAL SHEET

The thesis submitted by Amy M. Heard has been read and approved by the following committee:

Amy Bohnert, Ph.D., Thesis Committee Chair
Associate Professor of Psychology
Loyola University Chicago.

Colleen Conley, Ph.D.
Associate Professor of Psychology
Loyola University Chicago

The final copies have been examined by the chair of the thesis and the signature that appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

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Date Chair's Signature